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TRAINING OF TRAINERS FOR HEALTH SYSTEMS RESEARCH

Indra Pathmanathan
N.I. Nik-Safiah

Health Systems Research Training Series

Volume 5

IDRC
CANADA

The International Development Research Centre is a public corporation created by the Parliament of Canada in 1970 to support research designed to adapt science and technology to the needs of developing countries. The Centre's activity is concentrated in six sectors: agriculture, food, and nutrition sciences; health sciences; information sciences; social sciences; earth and engineering sciences; and communications. IDRC is financed solely by the Parliament of Canada; its policies, however, are set by an international Board of Governors. The Centre's headquarters are located Ottawa, Canada. Regional offices are located in Africa, Asia, Latin America, and the Middle East.

The World Health Organization is a specialized agency of the United Nations with primary responsibility for international health matters and public health. Through this organization, which was created in 1948, the health professions of some 165 countries exchange their knowledge and experience with the aim of making possible the attainment by all citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life.

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Volume 2: Designing and conducting health systems research projects

Part I - Proposal development and fieldwork (IDRC-287e.1)
Part II - Data analysis and report writing (IDRC-287e.2)
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Volume 3: Strategies for involving universities and research institutes in health systems research (IDRC-288e)
Ann Brownlee, Lilia Duran Gonzales, and Indra Pathmanathan

Volume 4: Managing health systems research (IDRC-289e)
Indra Pathmanathan

Il existe également une version française de cette publication.
La edición española de esta publicación también se encuentra disponible.

HSR Training Series

Volume 5: Training of Trainers for Health Systems Research

The Technical Working Group

Ann Brownlee (United States)
Lilia Duran Gonzales (Mexico)
German Gonzales (Colombia)
Yvo Nuyens (Belgium)
Indra Pathmanathan (Malaysia)
Annette Stark (Canada)
Patrick Twumasi (Ghana)
Corlien M. Varkevisser (The Netherlands)

IDRC-290e

Training of Trainers for Health Systems Research

Health Systems Research Training Series
Volume 5

Indra Pathmanathan
N.I. Nik-Safiah

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PO Box 8500, Ottawa, Ontario, Canada K1G 3H9

Pathmanathan, I.
Nik-Safiah, N.I.

IDRC, Ottawa, Ont. CA
WHO, Genève, CH

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Abstract

This is the fifth volume in a five-volume Health Systems Research (HSR) Training Series which has been compiled by a Technical Working Group, supported by IDRC and WHO. Each volume is directed toward a particular target group and each addresses specific aspects of the HSR process. Volume 5 is designed to assist experienced researchers to acquire competence in the training approaches that have been successfully developed and used in orienting the various target groups to the programs and methods of HSR. The teaching methods have general application for training health personnel in a variety of topics.

The other volumes in the training package are: volume 1, which focuses on the need to promote the use of HSR as a management tool and reviews strategies for promoting HSR among policymakers and senior managers; volume 2, a course outline in modular format, which deals step-by-step with the development of an HSR proposal and field testing (Part I) and with data analysis, report writing and implementation (Part II); volume 3, a review of strategies that can assist universities or research institutes to initiate and implement multidisciplinary HSR programs; volume 4, a course outline in modular format designed to provide research managers with the skills for managing a program of HSR.

The series is designed to support a program of essential national health research. Users are encouraged to examine the materials critically and to choose and adapt them to their particular needs.

Résumé

Ce volume est le cinquième d'une collection de cinq volumes de formation à la recherche sur les systèmes de santé (RSS) qui ont été rassemblés par un groupe de travail technique financé par le Centre de recherches pour le développement international et l'Organisation mondiale de la santé. Chaque volume est destiné à un groupe particulier et chacun porte sur certains aspects de la recherche sur les systèmes de santé. Le volume cinq vise à aider des chercheurs confirmés à acquérir des compétences dans l'application des approches de formation qui ont été mises au point et employées avec succès pour orienter les divers groupes cibles vers les programmes et les méthodes de la RSS. Les méthodes d'enseignement peuvent servir à la formation du personnel sanitaire dans divers domaines.

Les autres volumes de la collection sont les suivants: le volume 1 traite de la nécessité de promouvoir la RSS comme outil de gestion. Y sont décrites les stratégies propres à cette promotion auprès des décideurs et des cadres supérieurs. Le volume 2, sous forme modulaire, est le volume central qui expose, étape par étape, la manière de formuler une proposition de RSS et de la mettre à l'essai (partie I), et aussi d'analyser les données et de rédiger un rapport (partie II). Le volume 3 vise à aider les chercheurs de formation universitaire qui travaillent dans des universités ou des instituts de recherche et qui veulent promouvoir des programmes multidisciplinaires de RSS et y participer. Le volume 4 est un guide de gestion d'un programme de RSS.

Ces cinq volumes ont pour but d'appuyer la mise sur pied d'un programme national de recherche essentielle en santé. Les personnes qui s'en serviront sont incitées à les examiner d'un oeil critique et à en tirer ce qui répond à leurs besoins ou y répondrait après adaptation.

Resumen

Este es el quinto de cinco volúmenes de una serie de capacitación sobre Investigación de Sistemas de Salud (ISS), compilada por un Grupo de Trabajo Técnico que recibió el apoyo del Centro Internacional de Investigaciones para el Desarrollo (CIID) y la Organización Mundial de la Salud (OMS). Cada volumen está dirigido hacia un grupo particular y trata de aspectos específicos del proceso de ISS. El Volumen 5 está concebido para ayudar a investigadores experimentados a adquirir competencia en los enfoques relacionados con la capacitación que hayan sido desarrollados exitosamente y utilizados en orientar a los grupos en los que se centra la atención acerca de los programas y métodos de ISS. Los métodos pedagógicos tienen aplicación general para capacitar al personal de salud en una variedad de tópicos.

Los otros volúmenes en la serie son: volumen 1, centra su atención en la necesidad de promover los usos de ISS como instrumento de gestión. Asimismo, describe las estrategias para promover la ISS entre ejecutivos y gerentes principales; volumen 2, en formato modular, elemento fundamental que trata progresivamente del desarrollo de una propuesta de ISS y la prueba sobre el terreno (Parte I). Asimismo, se trata en este volumen el análisis de datos y la redacción de informes (Parte II); volumen 3, concebido para ayudar a los investigadores con educación universitaria que trabajan en universidades o institutos investigativos que deseen promover y participar en programas multidisciplinarios de ISS; volumen 4, guía para la gestión de un programa de ISS.

La serie está diseñada para apoyar un programa esencial de investigación sobre salud a nivel nacional. Se exhorta a los usuarios a examinar críticamente los materiales y/o adaptarlos a sus necesidades particulares.
abstract

ACKNOWLEDGMENTS

A major input into the process of developing this training series has been made by the members of the Technical Working Group and especially by the participants and trainers, named and unnamed, in the various courses that have been part of this exercise. This volume was developed and tested in Malaysia during workshops in which participants were potential trainers from ministries of health and universities in Malaysia as well as Indonesia, People's Republic of China, the Philippines, Socialist Republic of Vietnam, and Sri Lanka, all of whom provided valuable feedback.

Special thanks are due to Ann Brownlee (USA), Maimunah Abdul Hamid (Malaysia), and Nigel Harding (United Kingdom) who contributed valuable ideas for several of the modules. Finally, a great deal of effort was devoted to word processing, editing, formating, proofreading, and all the other painstaking tasks involved in publishing by another group of dedicated people.

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FOREWORD

The ultimate goal of any national health-development process is to enable its people to reach a level of health that at least enables them to participate actively in the social and economic life of the community in which they live. To attain this objective, existing health systems must be redirected to achieve equitable reallocation of resources for health - total coverage, increased accessibility to primary health-care services, and effective referral to secondary and tertiary levels of care. It is also relevant to develop appropriate mechanisms to promote effective community participation in the promotion and maintenance of health.

Such redirection of health systems may require changes in health-care planning and government policy; in the organization and administration of health and related services; in the financing and budgeting of systems and procedures; and in the selection and application of appropriate technology.

To effect the necessary changes, countries must decide on the best approaches to adopt. This requires detailed and accurate information on needs, possibilities, and consequences of recommended actions. Such information is often lacking, inadequate, or unreliable. As a result, decisions are based on assumptions and unjustified conclusions and often result in inappropriate policy choices, the consequences of which are only discovered after implementation.

Research is a systematic search for information and new knowledge. It serves two essential and powerful purposes in accelerating advances in health. First, basic or traditional research is necessary to generate new knowledge and technologies to deal with major unresolved health problems. Second, applied research is necessary to the process of identifying priority problems and to designing and evaluating policies and programs that will be of the greatest health benefit, using existing knowledge and available resources, both financial and human.

These two purposes together, in what has now been defined as essential national health research, must catalyze the generation of new knowledge and the application of existing knowledge, an essential link to equity in development.

During the past decade, concepts and research approaches to support health development have evolved rapidly. Many of these have been described by specific terms such as operations research, health services research, health manpower research, policy and economic analysis, applied research, and decision-linked research. Each of these has made crucial contributions to the development of Health Systems Research (HSR) but their limited and highly focused approaches to problem solving have resulted in their being integrated within the scope of HSR while at the same time describing their unique contribution to health in development.

HSR is ultimately concerned with improving the health of a community, however defined, by enhancing the efficiency and effectiveness of the health system as an integral part of the overall process of socioeconomic development.

The aim of HSR is to provide health managers at all levels with the relevant information that they need to solve the problems they are facing. The participatory nature of such research is one of its major characteristics. It is argued that the involvement of all parties - the community, health-care managers and decision-makers, and researchers - in the definition of the problem helps to focus the investigation and to enrich the quality of the data collected. Similarly, participating in all stages of the research is essential if feasible and acceptable solutions to problems are to be implemented and sustained at community, district, regional, or national level.

Because HSR addresses health problems in the broad context of social, economic, and community development, research inputs from many different disciplines are required. These include demography, epidemiology, health economics, policy and management sciences, social and behavioral sciences, statistics, and some aspects of the clinical sciences. Each of these disciplines has developed specialized research approaches in its efforts to provide information that will support health development, but it is increasingly evident that the problems that are addressed by HSR require a combined input from many disciplines and especially that researchers from these specialized fields need to acquire the skills to work together in multidisciplinary teams.

The main characteristics of HSR are

- Its focus on priority problems in health;
- Its participatory nature;
- Its action orientation;
- Its integrated, multidisciplinary approach;
- Its multisectorial nature;
- Its emphasis on cost-effectiveness;
- Its focus on practical, timely solutions; and
- Its iterative nature that allows for evaluation of the impact of planned change and consequent revision of action plans and health policy.

Although its methodologies can be applied to similar problems in different countries, the findings and solutions to these problems are unlikely to be the same because of differences in cultural, social, economic, and political realities. This is one of the strong arguments in support of a national core of persons trained in HSR whose orientation and plan of work is guided by the country's agenda of essential national health research.

With progressive development, the uses of HSR are becoming more widely appreciated. As a result, it is being integrated into and applied in special areas of management such as quality assurance, technology assessment, and resource management.

Because the capacity for HSR is small, especially in developing countries, it is not surprising that, over the last few years, a series of training programs has been organized or funded by many agencies, including the International Development Research Centre (IDRC), the Pan American Health Organization (PAHO), the World Health Organization (WHO), and the US Agency for International Development (USAID).

As well, several international health programs have given high priority to capacity building for HSR.

- The UNICEF *Special Program on National Capacity Building for Child Survival and Development* aims "to strengthen awareness, knowledge, and skills for operations research using the health systems approach to promoting inquisitiveness and self-reliant approaches to identify pressing problems at the community level and find practical solutions for them."

- The overall goal of the *Network of Community Oriented Educational Institutions for Health Sciences* is "to improve the relevance of health professions education by enhancing the ability of graduates to help identify and solve the problems of communities in which they serve ... using as framework a new system of partnerships among universities, governments and communities, the focus of which is a program of essential national health research."

- The *International Health Policy Program* is planning to develop health-policy research and training centres, whose role will be to facilitate and coordinate the "synthesis of policy-relevant research, dissemination of such research, capacity building in health policy analysis, and technical assistance for policy analysis and research."

- The *International Clinical Epidemiology Network* (INCLEN) supports the development of clinical epidemiology units (CEUs) in medical schools in developing countries. The role of CEUs is to provide leadership in the application of quantitative measurement principles (drawn from clinical epidemiology, biostatistics, health economics, and health social science) in the research, education, and service responsibilities of the medical school.

- The Danish International Development Agency (DANIDA) has been supporting a series of inter-regional training workshops for research managers in HSR and, since 1987, the *Joint Project of the World Health Organization* and *The Netherlands Ministry for Development Cooperation - The Royal Tropical Institute* is involved in a process for capacity building for HSR in 14 countries of southern Africa.

All these and many more initiatives in capacity building for applied research received, in 1990, a strong political, moral, and intellectual backing in the recommendations of the Commission on Health Research for Development. In its *Agenda for Action*, the Commission recommends

> That building and sustaining research capacity be integrated as a key objective and powerful instrument for all health and development investments. Primary commitment must come from developing-country governments to accord priority and provide sustained financial support. Strong international re-enforcement is also needed. International exchange and interaction can do a great deal to help strengthen the capacity of developing-country researchers and institutions.

Within the broader context of the Commission's recommendations, three major challenges for the future development of HSR can be identified:

- How to enhance the demand for HSR;

- How to strengthen national capacities in HSR; and

- How to institutionalize the efforts into a sustainable process.

It is with these challenges in mind that this *Health Systems Research Training Series* was developed.

Annette Stark, Associate Director
Health Systems Research
Health Sciences Division
International Development Research Centre

Yvo Nuyens, Programme Manager
Health Systems Research and
Development
World Health Organization

GENERAL INTRODUCTION

A recent review of Health Systems Research (HSR) workshops sponsored by IDRC concluded that, although IDRC's objectives had been met, training materials should be revised and expanded to meet the needs of specific groups and to guide the development of follow-up sessions. In a related action, the WHO Global Advisory Group on HSR concluded that building and sustaining national capacities for HSR was a major issue to be addressed in program activities. It was specifically recommended that these activities must include components to "evaluate and revise training materials periodically and to support training programs at different levels of the health systems."

As a result of these recommendations, representatives of IDRC, PAHO, and WHO met in Ottawa in October 1988 to review past and current initiatives and to propose future activities. The group recognized that, if training in HSR is to have an impact on improving health and health care, it is necessary to clarify the context and stages of development of an effective HSR process within a given country. It was further decided that specific target groups for orientation and training in HSR should be selected and appropriate training strategies developed to strengthen the research capacity of countries, based on their specific needs and capabilities in HSR.

To achieve this goal, a technical working group was established and given the mandate to define and coordinate the development of a basic set of training materials for each of five identified target groups. The framework consisted of:

- A definition of the target group;
- A description of the entry competence or entry characteristics of the target group;
- The expected outcome behaviour, including skills and attitudes;
- The appropriate training strategies and training context; and
- The available training materials.

The deliberations and effort of the Technical Working Group have resulted in these five volumes of materials. Users are encouraged to become familiar, generally, with the entire set and then to selectively implement a program of training, research, planning, and health-care policy based on their country's needs.

Volume 1: Promoting Health Systems Research as a Management Tool

For Decision-makers
This document focuses on the need to promote the use of HSR as a management tool among decision-makers. Based on an analysis of experience in developing countries in the last decade, it presents an overview of how HSR can lead to better decisions and how the development of an effective research program can be fostered at country level. In addition, it provides descriptions of specific strategies for promoting HSR among policymakers and senior managers that have been used successfully in a number of settings.

Volume 2: Designing and Conducting Health Systems Research Projects

Part I - Proposal Development and Fieldwork
Part II - Data Analysis and Report Writing
Course participants, who may include concerned citizens, health workers, researchers, and health decision-makers from the provincial or even national level, will select priority health problems particular to their own situations that cannot be solved unless more information is collected. Preferably, the topics will have been selected before the training starts (see Volume 1), but they may need more specification. In most cases, a team of course participants will then carry out the planned research alongside their regular duties (Part I). A second workshop is then scheduled to provide information on data analysis, report writing, and utilization of results (Part II).

This volume is the pivotal one that deals specifically with the development of research proposals of a participatory nature (community/health-care manager/researcher) and, subsequently, with the implementation of the field study and the analysis and dissemination of study results. In this context, it is also of interest to junior researchers and those persons in universities and other training facilities who wish to operationalize HSR.

Volume 3: Strategies for Involving Universities and Research Institutes in Health Systems Research

For Senior Researchers and Academic Staff
This volume is designed to assist university-trained researchers located in universities or research institutes who wish to promote and participate in multidisciplinary programs of HSR. This volume will be of particular interest to those who wish to integrate the concepts of HSR into existing health and social science degree programs and to promote the development of student theses in the area.

Volume 4: Managing Health Systems Research

For Research Managers
The research managers for whom this volume is intended include managers of research institutes, academic departments, and agencies that have a function in processing research applications and in funding and coordinating research projects. The training should enable managers to facilitate their institutions' or organizations' contribution to and support of the development of HSR in the country as well as the utilization of research in improving the health of the people.

Volume 5: Training of Trainers for Health Systems Research

For Trainers and Facilitators
Experienced researchers are not necessarily experienced teachers. Moreover, few of them have experience in the organization and training of participants for whom research is a secondary responsibility and who have limited time to read or engage in research activities.

For training in HSR to be effective, experienced researchers need to acquire competence in the training approaches that have been successfully developed and used during the past few decades for training health personnel in a variety of important topics related to health.

Trainers and facilitators include those whose primary responsibility is organizing and conducting training courses for the different target groups and those who assist trainers in conducting courses.

INTRODUCTION TO THIS VOLUME

This volume is intended for use during short courses for training of trainers in health sciences research (HSR). It consists of fifteen modules dealing with basic concepts in HSR and the research process, educational methods, and training strategies relevant to HSR.

This volume should be used in conjunction with the other volumes in the HSR Training Series. There are several cross references. Those who use this volume will probably select materials from illustrations and exercises in the other volumes. Participants in the course may use one or more of the other volumes when they plan HSR courses they will teach in the future.

Each of the fifteen training modules in this volume has:

- Learning objectives;
- Suggestions concerning educational methods to be used in presenting the module;
- Content;
- Guidelines for group work or exercises;
- Notes for facilitators; and
- A list of reading materials (in most cases).

There are three types of modules:

1. **Modules on HSR and some of the relevant research methods.**

   These are based on modules that appear in other volumes in the training series and provide guidance on how to use these modules during a training of trainers course.

2. **Modules on educational approaches.**

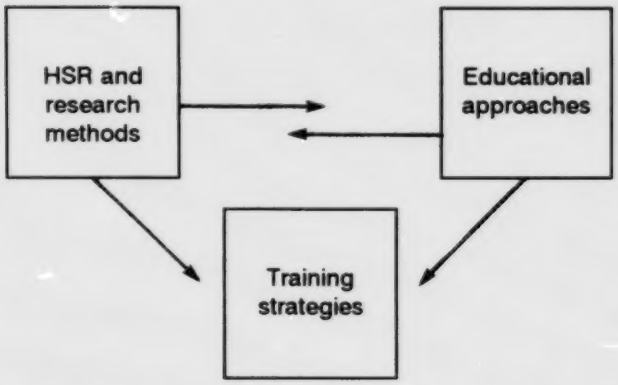
   These provide an introduction to theoretical aspects of teaching, followed by exercises. Each exercise gives practice in a particular educational approach while the content of the exercise relates to some aspect of research.

3. **A module on training strategies to support the development of HSR.**

   This module provides an introduction to the processes involved in developing HSR in a country and the different types of training strategies that have been effective for the main target groups (decision-makers, health personnel and junior researchers, experienced researchers and academicians, and research managers). It includes exercises during which participants analyze the training needs in their country (or institution) and prepare a proposal for a training course that they intend to implement.

The relationship between these three types of modules is shown in Figure 1. The sequence, rationale and content of the modules is shown in Figure 2.

Figure 1. Relationship between the three types of modules.



An example of a course schedule for a workshop using the above modules is given at the end of this introduction.

Selecting material from this volume

The training modules that are provided in this volume may be combined in several ways to suit the educational needs of participants and to fit into the time available for a training of trainers course. The following are some examples of how selections can be made:

- Use all the modules, but adjust the sequence.
- Omit a few modules that are "familiar territory" (e.g., Use of Audio-Visual Aids).
- Select a few modules (e.g., for a weekend course to prepare facilitators who will assist in group work sessions of a forthcoming course in HSR).
- Use all the modules, but omit some of the content in certain modules.

Trainers

The term **TRAINERS** is intended to include those whose primary responsibility includes **organizing and conducting training courses** in HSR. Trainers may need to conduct training courses for any of the following types of **target groups**:

1. Beginning researchers (e.g., health workers and midlevel managers) and junior researchers in academic institutions.
2. Experienced researchers in universities and research institutions.
3. Decision-makers at policy and management levels.
4. Research managers.

Figure 2. The rationale and content of the modules in this volume.

Why have this module	Module	Content
To introduce training of trainers in HSR	Module 1: Orientation to the course	• Experienced researchers are not experienced trainers • Training skills are needed to train part-time researchers in non-academic settings • A "trainer" must be a manager, a teacher and a researcher
To review the purpose, scope, and uses of HSR	Module 2: Health systems research: a review	• Purpose of HSR • Similarities with other types of research • Special characteristics of HSR
To indicate what we expect in a research proposal	Module 3: Critical appraisal of research proposals	• Critique a proposal using a given set of guidelines
To provide an overview on designing a short course to train participants to do research	Module 4: Introduction to planning a course on designing and conducting HSR projects	• Outline of a course to: - Prepare research proposals; - Manage "fieldwork" (data collection); and - Analyze data, prepare and present reports. • Role of trainers • Principles of learning
To understand group process as a basis for facilitating group discussions	Module 5: The group process	• The group process • Types of behaviour in a group
To introduce the step-by-step approach adopted in the course on Designing and Conducting HSR Projects"	Module 6: Implementing selected steps in the research process	• Selection and analysis of research problems • Formulation of research objectives and selection of variables • Supervising a research project
To clarify the expected outcome of a learning experience for both the teacher and the learner	Module 7: Learning objectives	• Purpose of learning objectives • Construction of objectives
To plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan

Why have this module	Module	Content
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
To discuss how to make a lecture an effective learning experience	Module 10: The lecture method	• Purpose of lectures • Preparation of lectures • Effective delivery
To review how to make and use audiovisual aids effectively	Module 11: Use of audiovisual aids	• Types and purpose of audiovisual aids • Preparation and use of transparencies
To learn teaching skills through practice and constructive feedback	Module 12: Micro-teaching	• Explaining • Questioning and reinforcement • Composite teaching skills • Practice and critique
To practice facilitating learning during small group discussions	Module 13: Facilitating small group discussions	• Facilitating small group discussions • Practice and critique • Managing change and conflict
To determine, for any country: • Who needs training in HSR • What type(s) of training strategies are appropriate • What should be the content of training • What training materials are available How to use the available material to plan a short course	Module 14: Training in health systems research	• Process of developing HSR in a country • Training needs and strategies • Training materials that are available • Planning a short course in HSR
To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Selection of potential trainers

The selection of candidates suitable to become trainers will depend, to some extent, on the quantity and quality of expertise available, organizational structures, career development structures, etc., within the country. Also, it is necessary to recognize that a trainer who organizes and conducts training courses for decision-makers or research managers will need to be more mature and have a higher degree of credibility than a trainer who conducts courses for junior researchers or health staff, although both must be knowledgeable and competent. Such credibility has to be acquired through experience and cannot be imparted during a training course.

If HSR is at **an early stage of development** in a country, the selection of suitable candidates to become trainers should take into consideration, not only the academic background, but also previous research experience and personality. Previous research experience will serve to establish credibility. The trainer's personality should be such as to enable him or her to rapidly establish rapport with various agencies and institutions where expertise may be available and can be harnessed to support future training efforts, as well as to establish rapport with researchers and the potential users of research.

If HSR is at a **more advanced stage of development** and institutional linkages to support HSR and its utilization are already established, prerequisites for potential candidates could focus more on academic background, research experience, and a desire to teach, and personality would be a less important factor.

Prerequisites and entry competence

Potential trainers should:

1. Possess a master's degree in a "health" specialty (i.e., public health, medical sociology, health economics, health statistics, epidemiology, etc.) or health/hospital management.

2. Have attended a research course at the master's level or a specially designed research course of at least 3 months duration.

3. Have done research that has been published or have produced a research report that has been accepted by health authorities.

4. Have an interest in education.

Preparation of trainers

The preparation of trainers for HSR can take several forms, one of which could be a training of trainers course such as the one described in this volume. Other important approaches include:

- **Attending an HSR course of the type that the trainer is expected to conduct.** There are many types of courses in HSR. The courses which are a part of this HSR Training Series require the trainer to be familiar with the learning strategies and group dynamics used within them. It is therefore useful for a potential trainer to attend the specific course either as participant, observer or facilitator.
- **Serving as a facilitator** or mentor for an individual or group who is doing a research project.
- **Assisting in conducting an HSR course** and thus learning by doing.

Reference materials

A list of useful references is provided at the end of many of the modules. As far as possible, these articles or books should be made available as part of a course library during the training of trainers course.

Immediate outcome expected of trainers

Trainers who have successfully completed this course should be required to immediately organize and conduct a training course for one of the target groups in their countries, so that they can apply their knowledge and improve their training skills. The Teaching Practice session (Module 15) should be implemented one or several times during that course.

EXAMPLE OF A COURSE FOR TRAINING OF TRAINERS

Course participants

Training of trainers in HSR is one of a series of initiatives to build the national capacity to conduct research on priority problems and is intended to develop a core group of trainers to provide input for training initiatives for HSR. The course is intended for experienced researchers from research institutes and universities to prepare them to serve as trainers (educators) in health systems research.

Course objectives

General:
To enable participants to plan and conduct training in HSR.

Specific:
At the end of the course, the participants should be able to:

1. Recognize the training needs for HSR and identify appropriate training materials.
2. Plan and conduct short courses in HSR.

Preworkshop preparation

Information for participants:
A letter should be sent to the participants who have been selected for the course. A sample letter is presented after this description. A package of reading materials on HSR should also be sent to participants before the workshop with information on how these materials would be referred to in the groupwork on Day 1.

Preworkshop reading assignment:
Commission on Health Research for Development. 1990. *Health Research: Essential Link to Equity in Development*. Oxford University Press, Oxford, England. [Relevant sections to be selected]

Taylor, Carl C. 1984. *The Uses of Health Systems Research*. World Health Organization, Geneva, Switzerland. Paper no. 78. pp. 1-15 and 42-46.

World Health Organization. 1988. Case studies of Malaysia and of the Netherlands or Botswana. In *Health Systems Research in Action*. WHO, Geneva, Switzerland.

World Health Organization. 1990. Case study on Chagas disease control in Venezuela. In *From research to decision-making: case studies on the use of HSR*. WHO, Geneva, Switzerland. SHS/HSR/902. pp. 10-17.

World Health Organization. 1983. *Research for Reorientation of National Health Systems*. Report of a WHO Study Group. WHO, Geneva, Switzerland. Technical report series 694.

Course facilitators
For a course of 15 to 20 participants it is necessary to have at least three course facilitators who have research background and have conducted Volume 2 type courses (i.e., Designing and

Conducting HSR Projects). One facilitator should have a background in educational methods.

Course facilitators should be familiar with the other four volumes in this HSR Training Series. They should pay particular attention to:

Volume 2 (Designing and Conducting HSR Projects): Modules 1 through 10
Volume 4 (Managing HSR): Modules 2, 3, 6 and 9.

They should also be familiar with the preworkshop reading assignment given to the participants.

All facilitators should be available full time throughout the course and should meet and review progress at strategic points during the workshop.

Handouts for the workshop
Materials that are to be used as handouts during the workshop are clearly identified in each module. Sufficient copies should be prepared for distribution to the participants. In addition, every participant should have a copy of both parts of Volume 2 of this Series.

Facilities for the workshop
There should be sufficient space for the participants to work in one large group during presentation of the modules and during plenary sessions; and to work in separate small groups of 6 to 8 participants without the noise from each group disturbing other groups. Also, if possible, there should be facilities for video-recording and immediate playback during the microteaching sessions.

The course

Components of the course
The course consists of three components:

1. Sessions on a review of HSR and steps in the research process.
2. Sessions on educational technology.
3. Sessions on planning and managing training in HSR.

Each component has a brief lecture or discussion and group work or individual exercises.

Teaching skills
All participants should have the opportunity to practice teaching skills during microteaching sessions and practice sessions for composite teaching skills. Participants can select their presentations from a range of topics related to the research process (e.g., validity and reliability, experimental study design, descriptive study design, types of variables). In addition, participants have an opportunity to play the role of both facilitator and various types of group members in a session on facilitating small groups.

The research process
After a review of HSR and practice in critiquing a research proposal, an overview is provided of a typical short course that focuses on preparing research proposals; managing fieldwork (data collection); and analyzing data and preparing and presenting reports. Then during the group work on Selected Steps in the Research Process, participants work in three groups and select topics for which they go through the process of:

Problem identification and selection,
Problem analysis,
Formulation of a few sample research objectives, and
Selection of variables for the objectives that have been formulated.

Examples of research topics that might be selected by the groups to work on include:

Group 1: Bypassing of smaller health facilities by patients with minor illnesses
Group 2: High incidence of diarrhea in creches or child-care facilities
Group 3: Inadequate training for public health nurses in child health assessment

These sessions give participants a chance to understand the dynamics of development of research proposals during a short HSR course.

Planning and managing training in HSR
Participants work in small groups or as individuals to analyze the training needs of their institution (or country) and develop proposals for training courses that they plan to organize or contribute to. For example, participant groups might develop proposals for training activities such as:

- A meeting of high-level managers in clinical units in the university on HSR (to build consensus)
- A national consultative meeting on HSR for top-level decision-makers in the ministry of health and senior researchers
- A workshop on designing and conducting HSR projects for mid-level health personnel and junior researchers
- A workshop for training biomedical researchers in the institute of medical research on HSR
- Design of a model HSR program in which university researchers collaborate with provincial health managers and health-care providers to provide training in HSR and work jointly on HSR focused on priority health problems identified by provincial health-care decision-makers.

During the discussion of these proposals in the plenary session, suggestions can be made and opportunities for networking between participants identified.

The course schedule
A sample of a course schedule is presented after the pre-workshop letter and information for participants. In this sample schedule the sessions on planning a course in HSR are concentrated in the last days of the training of trainers course. An alternative approach, which may work well in some circumstances, would be to hold a number of working sessions throughout the course, during which participants apply what they have learned in various sessions to the development of their own course or program. For example, after the session on learning objectives, participants would work to prepare learning objectives for one or more of the sessions in the course they plan to give. After the session on lesson planning, they would prepare a full plan for the same session. During microteaching sessions, they would present a brief part of one of the sessions they will teach, etc. Near the end of the course, time could still be scheduled for them to finalize their plans.

HEALTH SYSTEMS RESEARCH WORKSHOP
TRAINING OF TRAINERS

Pre-Workshop Information

****

Dear Participant,

You have been invited to this workshop because of your interest and activities in research. Attached is preliminary information on the workshop. Participants will be from (add in list of organizations sending participants). Some foreign participants are also expected.

On Day 1 of the workshop, there will be an exercise during which you will be expected to discuss the following questions:

1. What is the purpose of health systems research (HSR)?

2. Compare HSR with clinical *or* biomedical (including epidemiological) research:

   - List similarities
   - Identify special characteristics of HSR

3. Who should do health systems research?

To prepare for the exercise, I enclose the following materials for reading prior to the workshop:

Commission on Health Research for Development. 1990. *Health Research: Essential Link to Equity in Development*. Oxford University Press, Oxford, England. [Relevant sections to be selected]

Taylor, Carl C. 1984. *The Uses of Health Systems Research*. World Health Organization, Geneva, Switzerland. Paper no. 78. pp. 1-15 and 42-46.

World Health Organization. 1988. Case studies of Malaysia and of the Netherlands or Botswana. In *Health Systems Research in Action*. WHO, Geneva, Switzerland.

World Health Organization. 1990. Case study on Chagas disease control in Venezuela. In *From research to decision-making: case studies on the use of HSR*. WHO, Geneva, Switzerland. SHS/HSR/902. pp. 10-17.

World Health Organization. 1983. *Research for Reorientation of National Health Systems*. Report of a WHO Study Group. WHO, Geneva, Switzerland. Technical report series 694.

We hope you will enjoy this workshop.

Sincerely,

(Name and position)

HEALTH SYSTEMS RESEARCH
TRAINING OF TRAINERS COURSE

****

(Dates)

Organized by:

(Names of organizations)

****

PARTICIPANTS:

Participants should be researchers from ministries of health, research institutions or universities who have:

a. Previous training in research methodology
b. Previous experience as principal investigators in research projects that have been completed and published
c. Interest in health-systems research

Participants who have previously participated in or been observers in a health systems research course will be given priority.

OBJECTIVE AND OUTCOMES:

Objective:

- To enable participants to plan and conduct training in health systems research.

Expected outcome of the workshop:

At the end of the workshop participants should be able to:

- Recognize the training needs for health systems research and identify appropriate training materials.

- Plan and conduct short courses in health systems research.

Immediate output:

During the workshop each participant will plan a short course in health systems research which he/she will implement or contribute to during the subsequent 12 month period.

WORKSHOP FACILIATORS:

Workshop facilitators include: (Names)

SAMPLE COURSE SCHEDULE

Day 1

08:00	Registration
08:30	Introduction and course overview
09:00	Orientation to Training of Trainers in HSR course
09:45	Discussion
10:00	Coffee break
10:30	Health Systems Research: A Review
11:30	Discussion
12:30	Lunch
14:00	Critical Appraisal of Research Proposals
15:30	Discussion
17:00	Opening

Day 2

08:30	Introduction to planning a training course on "Designing and Conducting HSR Projects"
08:45	Group work: "The Research Process"
10:30	Coffee break
11:00	Group presentations, summary by module facilitator
12:30	Lunch
14:00	How to Construct Learning Objectives
15:00	Lesson Planning Home assignment on Planning a Lesson
16:30	Tea

Day 3

08:30	Introduction to group discussion: "The Group Process"
09:30	Introduction to exercise on "Selection and Analysis of Problems"
10:00	Exercise: "Selection and Analysis of Problems"
11:00	Coffee break
11:30	Exercise: "Selection and Analysis of Problems" (continued)
12:30	Lunch
14:00	Exercise: "Selection and Analysis of Problems" (continued)
16:30	Tea

Day 4

08:30	Introduction to exercise on "Formulation of Research Objectives and Selection of Variables"
09:00	Exercise: "Formulation of Research Objectives and Selection of Variables"
10:30	Coffee break
11:00	Exercise: "Formulation of Research Objectives and Selection of Variables" (continued)
12:30	Lunch
14:00	Plenary 1: Presentation of Results of Group Work on Problem Analysis, Objectives, and Variables

Day 5

08:30	Introduction to Principles of Learning and Teaching Methods
09:10	The Lecture Method
10:30	Coffee break
11:00	Use of Visual Aids Preparation of Transparencies
12:45	Lunch
14:15	Introduction to Microteaching
14:45	Microteaching: "Explaining"
16:00	Tea
16:15	Planning for "Explaining"

Day 6

08:30	Microteaching Practice: "Explaining" Critique and discussion
10:00	Coffee break
10:30	Microteaching practice: "Explaining" (continued)
12:15	Lunch
14:45	Microteaching: "Questioning and Reinforcement"
16:00	Tea
16:15	Planning for "Questioning and Reinforcement"

Day 7

08:30	Microteaching Practice: "Questioning and Reinforcement" Critique and discussion
10:00	Coffee break
10:30	Microteaching Practice (continued)
13:00	Lunch
14:30	Training in HSR: Training Strategies
16:00	Tea

Day 8

08:30	Training in HSR: Training Strategies
10:00	Principles of Planning a Course in HSR
10:30	Coffee break
11:00	Planning a Course in HSR
13:00	Lunch
14:30	Introduction to Facilitating Small Group Discussions
16:00	Tea

Day 9

08:30	Facilitating Small Group Discussions: Practice
10:00	Coffee break
10:30	Facilitating Small Group Discussions: Practice (continued)
12:30	Lunch
14:00	Facilitating Small Group Discussions: Practice (continued)
16:00	Tea

Day 10

08:30	Planning a Course in HSR (continued)
10:00	Coffee break
10:30	Planning a Course in HSR (continued)
12:30	Course evaluation
13:00	Lunch
14:00	Plenary 2: Presentation of Plans
17:00	Closing and tea

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 1:

ORIENTATION TO THE COURSE: TRAINING OF TRAINERS FOR HEALTH SYSTEMS RESEARCH

The rationale and content of the modules in this volume

Why have this module	Module	Content
To introduce training of trainers in HSR	Module 1: Orientation to the course	• Experienced researchers are not experienced trainers • Training skills are needed to train part-time researchers in non-academic settings • A "trainer" must be a manager, a teacher and a researcher
To review the purpose, scope, and uses of HSR	Module 2: Health systems research: a review	• Purpose of HSR • Similarities with other types of research • Special characteristics of HSR
To indicate what we expect in a research proposal	Module 3: Critical appraisal of research proposals	• Critique a proposal using a given set of guidelines
To provide an overview on designing a short course to train participants to do research	Module 4: Introduction to planning a course on designing and conducting HSR projects	• Outline of a course to: - Prepare research proposals; - Manage "fieldwork" (data collection); and - Analyze data, prepare and present reports. • Role of trainers • Principles of learning
To understand group process as a basis for facilitating group discussions	Module 5: The group process	• The group process • Types of behaviour in a group
To introduce the step-by-step approach adopted in the course on Designing and Conducting HSR Projects"	Module 6: Implementing selected steps in the research process	• Selection and analysis of research problems • Formulation of research objectives and selection of variables • Supervising a research project
To clarify the expected outcome of a learning experience for both the teacher and the learner	Module 7: Learning objectives	• Purpose of learning objectives • Construction of objectives

Module 1: ORIENTATION TO THE COURSE: TRAINING OF TRAINERS FOR HEALTH SYSTEMS RESEARCH

OBJECTIVES

At the end of the orientation participants should be able to:

1. **Explain their role as trainers**
2. **Describe the course content**
3. **Explain the course process**

CONTENTS

Introduction of course participants and facilitators

Introduction to training approaches in HSR (lecture and discussion)

Knowledge, skills, and attitudes required of a trainer

Overview of the course content and process (lecture and discussion)

MATERIALS

Handout 1.1. Sample outline of a course for training of trainers

INTRODUCTION OF COURSE PARTICIPANTS AND FACILITATORS

Ask the facilitators and participants to introduce themselves, each telling a little about their background and their experience and interest in research and training.

INTRODUCTION TO TRAINING APPROACHES IN HEALTH SYSTEMS RESEARCH

The provision of formal training in research outside of university academic settings and research institutions is a recent development. It has arisen from the need to rapidly produce large numbers of personnel who are able to analyze scientifically and to investigate problems in the health system and to apply the findings of such investigations to improve the health-care system. Therefore, it has become necessary to develop simple yet effective methods of transferring research technology from academicians to health-service personnel. Experienced researchers are not necessarily experienced teachers. Few of them have experience in organizing and conducting training for participants for whom research is a secondary responsibility and who have limited time to read or to do research.

For training in health systems research (HSR) to be effective, the experienced researchers who will serve as trainers need to acquire competence in the training approaches that have been successfully developed and used during the past few decades for training health personnel on a variety of topics.

Trainers must be able, not only to train persons in research methodology, but also to devise training strategies that help ensure that relevant topics will be selected for the research and that findings will be used by health service managers. Furthermore decision-makers must be motivated to provide support for the researchers by providing funds, manpower, etc. Thus, if training is to be effective, it is essential to identify each of the target groups that should be trained within a particular country and then apply training methods that are most appropriate for each of them. Some of the groups for whom orientation or training is needed include:

1. **Decision-makers** who should use the findings of HSR and support its development.

2. **Beginning researchers** who have the potential to become principal researchers or who will be members of research teams.

   These may be health-service personnel (e.g., district health officers, entomologists, public health engineers, obstetricians, pediatricians, managers who are in charge of hospitals or training schools etc.). They may also be post-graduate students in universities.

3. **Experienced researchers** from relevant disciplines who need orientation to the multi-disciplinary, problem-oriented, participatory nature of HSR.

4. **Research managers** who will need to facilitate the development of HSR.

The target groups and types of orientation or training they will need depends on the particular context within the country. The selection of various types of personnel and the type of training in research that is needed for each group is discussed in **Module 6: Human Resource Development Strategies** of **Volume 4: Research Managers**.

Trainers in HSR should be able to organize and conduct training courses for all of these groups. Although the content of training varies for the different groups, the basic training methods and the issues that should be taken into consideration in organizing and conducting short training courses for these target groups are similar.

The role of trainers

The term *trainers* is used to encompass all types of persons who provide input for short courses in HSR. They have been variously referred to in other documents as trainers, facilitators, resource persons, coordinators, etc.

The types of input they can provide for short training courses are listed below. (You might ask the participants for ideas before summarizing.)

1. Planning and organizing the course
2. Making formal presentations (e.g., lectures, lecture/discussions)
3. Facilitating small group discussions
4. Advising on technical aspects of a topic that has been selected for a research project
5. Supervising a research project as part of a course
6. Providing advice on statistical aspects of research projects
7. Managing the logistics of the course (i.e., finance, transport, facilities, etc.)

Depending on the circumstances, a particular trainer could be expected to provide one or more of these inputs to a course. Several examples are given below:

Example 1:

A trainer may have to plan, organize, or be responsible for educational and management aspects of any of the following types of courses:

- Courses on development of research proposals;
- Courses on data collection and analysis and report writing;
- Workshops on promoting the use of HSR as a management tool; or
- Consultative meetings to develop HSR within a country.

It is apparent that the type of participants as well as the course content would be very different for each of these training and orientation activities.

[N.B. The above is only a sample of the types of HSR training activities that will be needed.]

Example 2:

A trainer may conduct preparatory sessions for a group of researchers who will serve as facilitators for the small group sessions and guide research projects during a research course but will not make formal presentations or be involved in course management.

Example 3:

A trainer may convene a group of experienced researchers and assist them in identifying how their research expertise can contribute to health development.

Example 4:

A trainer may work with a committee of academicians to assist them in reviewing the curricula of their training institution and integrating HSR content where appropriate.

KNOWLEDGE, SKILLS, AND ATTITUDES REQUIRED OF A TRAINER

Conduct a brainstorming session to focus attention on three functions required of trainers:

- As a **TEACHER** who identifies the training needs of a particular group of participants and plans, implements, and evaluates the course content and the various types of learning experiences during the course;
- As a **MANAGER** of a training course who obtains administrative support for the course, manages the budget, materials, manpower, and logistic support, ensures the appropriate type and number of participants, and obtains relevant input from resource persons and from policy makers or managers; and
- As a **RESEARCHER** who provides technical input on various aspects of HSR during the course and supervises and provides practical guidance to inexperienced researchers who are designing and implementing research projects.

OVERVIEW OF THE COURSE CONTENT AND PROCESS

The content that needs to be considered in a training of trainers course includes:

- An overview of the research process and an in-depth discussion of certain methodological aspects of research (e.g., problem analysis, selection of variables, types of study design);
- Concepts and approaches to training in HSR;
- Teaching/learning methods suitable for short courses in research for mature health personnel; and
- Management of short training courses in HSR (planning, logistics, etc.).

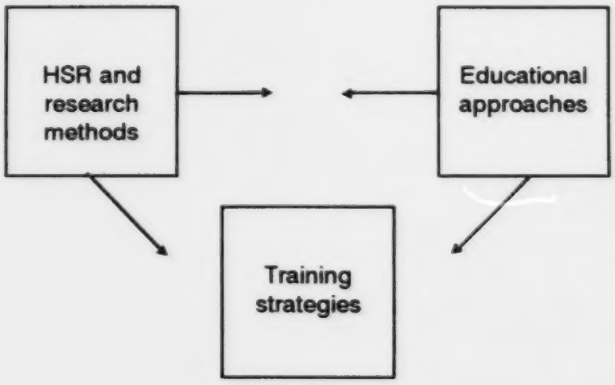
A training of trainers course should have a judicious mix of these components. The relative emphasis and proportion of time devoted to each component will depend on the background, entry competence, and future functions of the participants. Therefore, the course content for a Training of Trainers Course will consist of three types of modules:

- Modules on HSR and important research methods;
- Modules on educational approaches; and
- Modules on the management of short training courses.

These modules will be sequenced in such a way as to enable participants to apply theoretical concepts from education in the modules on research and in the modules on management of short courses.

The relationship of the three components of the course is illustrated in Fig. 1.1.

Figure 1.1. Relationship of components of the course.



The modules on HSR will provide practice in using modules from Volume 2 of this Training Series. The modules on educational approaches focus on the needs for HSR courses such as those provided in the Series. The modules on the management of short training courses are based on the material in the Annex of Volume 2, Part I (Proposal Development and Fieldwork) of this series.

A sample outline of a course for training of trainers is given in Handout 1.1. (Pass it out to the participants and review the various modules and their purposes.)

At the end of the course, the participants will have planned a short course in HSR which they will subsequently conduct or assist in conducting. There is a final module on teaching practice (Module 15) which should be completed when they conduct that course.

Course process

The course has been designed using principles of competency-based learning. The methodology is designed to encourage the participants to be independent and flexible in the execution of their responsibilities as trainers. Therefore, the course will rely heavily on group problem-solving, brainstorming, critical evaluation and individual presentations.

It is intended that trainers who have attended this course will, at a minimum, be able to conduct a training course in HSR methodology using the appropriate volume from this Training Series. They will also be able to adapt the materials to the specific needs of different types of course participants. With experience, some of the trainers should also be able to conduct training courses for other target groups (e.g., senior researchers, researcher managers) using the appropriate materials.

Handout 1.1. Sample outline of a course for training of trainers

Why have this module	Module	Content
To introduce training of trainers in HSR	Module 1: Orientation to the course	• Experienced researchers are not experienced trainers • Training skills are needed to train part-time researchers in non-academic settings • A "trainer" must be a manager, a teacher and a researcher
To review the purpose, scope, and uses of HSR	Module 2: Health systems research: a review	• Purpose of HSR • Similarities with other types of research • Special characteristics of HSR
To indicate what we expect in a research proposal	Module 3: Critical appraisal of research proposals	• Critique a proposal using a given set of guidelines
To provide an overview on designing a short course to train participants to do research	Module 4: Introduction to planning a course on designing and conducting HSR projects	• Outline of a course to: - Prepare research proposals; - Manage "fieldwork" (data collection); and - Analyze data, prepare and present reports • Role of trainers • Principles of learning
To understand group process as a basis for facilitating group discussions	Module 5: The group process	• The group process • Types of behaviour in a group
To introduce the step-by-step approach adopted in the course on Designing and Conducting HSR Projects"	Module 6: Implementing selected steps in the research process	• Selection and analysis of research problems • Formulation of research objectives and selection of variables • Supervising a research project
To clarify the expected outcome of a learning experience for both the teacher and the learner	Module 7: Learning objectives	• Purpose of learning objectives • Construction of objectives
To plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan

Why have this module	Module	Content
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
To discuss how to make a lecture an effective learning experience	Module 10: The lecture method	• Purpose of lectures • Preparation of lectures • Effective delivery
To review how to make and use audiovisual aids effectively	Module 11: Use of audiovisual aids	• Types and purpose of audiovisual aids • Preparation and use of transparencies
To learn teaching skills through practice and constructive feedback	Module 12: Micro-teaching	• Explaining • Questioning and reinforcement • Composite teaching skills • Practice and critique
To practice facilitating learning during small group discussions	Module 13: Facilitating small group discussions	• Facilitating small group discussions • Practice and critique • Managing change and conflict
To determine, for any country: • Who needs training in HSR • What type(s) of training strategies are appropriate • What should be the content of training • What training materials are available How to use the available material to plan a short course	Module 14: Training in health systems research	• Process of developing HSR in a country • Training needs and strategies • Training materials that are available • Planning a short course in HSR
To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 2:

HEALTH SYSTEMS RESEARCH: A REVIEW

The rationale and content of the modules in this volume

Why have this module	Module	Content
To introduce training of trainers in HSR	Module 1: Orientation to the course	• Experienced researchers are not experienced trainers • Training skills are needed to train part-time researchers in non-academic settings • A "trainer" must be a manager, a teacher and a researcher
To review the purpose, scope, and uses of HSR	Module 2: Health systems research: a review	• Purpose of HSR • Similarities with other types of research • Special characteristics of HSR
To indicate what we expect in a research proposal	Module 3: Critical appraisal of research proposals	• Critique a proposal using a given set of guidelines
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To clarify the expected outcome of a learning experience for both the teacher and the learner	Module 7: Learning objectives	• Purpose of learning objectives • Construction of objectives

Module 2: HEALTH SYSTEMS RESEARCH: A REVIEW

OBJECTIVES

At the end of the module participants should have:

1. Reviewed their understanding of the concept, scope and uses of HSR
2. Obtained insight into the viewpoint and perspectives of fellow participants

CONTENTS

Information for the module facilitator. This section describes the rationale and approach of this module, as well as the reading materials that should be sent to participants prior to the workshop.

Group work: The purpose of HSR and its characteristics

Group process exercise: To be conducted during group work

Presentation and discussion of group-work results (plenary)

Closing presentation

Comments on the group process

MATERIALS

Handout 2.1. The purpose of HSR and its characteristics

INFORMATION FOR THE MODULE FACILITATOR

All participants should have had post-graduate training in research, have done research and have had experience in guiding others in research. Pre-workshop reading assignment of materials on HSR should have been read by all participants. (See list below.)

Pre-workshop reading

These materials should be sent to participants to read before the workshop:

Commission on Health Research for Development. 1990. *Health Research: Essential Link to Equity in Development*. Oxford University Press, Oxford, England. [Relevant sections to be selected]

Taylor, Carl C. 1984. *The Uses of Health Systems Research*. World Health Organization, Geneva, Switzerland. Paper no. 78. pp. 1-15 and 42-46.

World Health Organization. 1988. Case studies of Malaysia and of the Netherlands or Botswana. In *Health Systems Research in Action*. WHO, Geneva, Switzerland.

World Health Organization. 1990. Case study on Chagas disease control in Venezuela. In *From research to decision-making: case studies on the use of HSR*. WHO, Geneva, Switzerland. SHS/HSR/902. pp. 10-17.

World Health Organization. 1983. *Research for Reorientation of National Health Systems*. Report of a WHO Study Group. WHO, Geneva, Switzerland. Technical report series 694.

Rationale and approach

The participants will probably come from different disciplines and have different academic backgrounds and working experiences. Their previous exposure to HSR will be varied. This session should be conducted as a group discussion during which every participant is encouraged to state his or her views. A free exchange of ideas is encouraged so that participants understand the perspectives of fellow participants. The discussion format will allow the course facilitators to "get the feel" of the entry competence and educational needs of participants. Based on this information, the course facilitator may decide to modify the content of the training of trainers course to devote more time, for example, to:

- Research methods;
- Concepts in HSR;
- Specific teaching methods; or
- Preparation for a specific course.

This session should also be used to initiate group interaction. This interaction should be observed and recorded by the facilitator who will later be presenting Session 5 on Group Process. Illustrative examples of several types of behaviour and interaction that have occurred during this session can be used during the presentation on Group Process.

GROUP WORK

1. Divide the participants into small groups of 6-8 persons. There should be at least two facilitators for each group. One should facilitate the session, while the other observes the group process.

2. Pass out Handout 2.1 and review the questions that the group should discuss:

   - What is the purpose of health systems research?
   - Compare HSR with clinical or biomedical research:
     - What are the similarities?
     - What are the special characteristics of HSR?
   - Who should do HSR? (i.e., What type(s) of researchers should do HSR?) Should other who are not professional researchers do HSR? If so, who?

3. Explain that the session will be conducted as follows:

15 minutes	Silent period for individual work during which each participant will prepare his or her own views on the topics for discussion
15 minutes	Individual presentations by participants on the topic
45 minutes	Group discussion
15 minutes	A summary by the group of its conclusions in plenary (5 minutes per group)
15 minutes	Closing presentation by facilitator

(Note: Do *not* ask the group to choose a chairperson and reporter, because one objective of this exercise is to give participants the experience of working in a group with no leadership or uncertain leadership. See the exercise on Group Process that follows for details.)

EXERCISE: GROUP PROCESS (to be conducted during the group work session)

OBJECTIVE OF EXERCISE:

While serving as a review of HSR, the group work session can be simultaneously used as a powerful first-hand learning experience about several aspects of the use of the **group process** as a teaching-learning method. This exercise will enable participants to experience the difficulties of working in a group with no leadership or uncertain leadership.

METHOD

1. The facilitator should introduce the topics for discussion during group work as outlined in item 2 of the Group Work session and outline the time schedule and activities for the session as described in item 3.

2. To contrive to give the participants the experience of working in a group with no leadership or uncertain leadership the facilitator should **not** officially appoint a chairperson or reporter.

   As soon as the presentation of views by individuals has begun, the facilitator should withdraw unobtrusively from the group and, as far as possible, refrain from making any intervention during the individual presentations and group discussion.

3. This withdrawal can be strengthened by the facilitator vacating his/ her seat and moving around behind the group.

4. The facilitator may remind the group when it is time to start the group discussion activity. However, he or she should leave it to the group to decide how to proceed.

5. At the end of the group work the groups will be asked to reassemble in plenary and make their presentations. The module facilitator will then make the closing presentation as described below. After that, the module facilitator can draw attention to the group process manoeuvre each of the group facilitators has executed and invite participants to review their own feelings during the process. (The facilitators for each group can also make comments.)

   If the groups initially tended to be overdependent on the facilitators and viewed them as the source of "correct answers," draw the attention to the impact of the "withdrawal manoeuvre" on this attitude.

PRESENTATION AND DISCUSSION OF GROUP-WORK RESULTS (plenary)

A representative from each group should briefly summarize the conclusions from its discussion (5 minutes each).

CLOSING PRESENTATION

In addition to reviewing the reading materials that have been distributed to the participants, the module facilitator should prepare for this session by reading the following modules from other volumes in the Training Series:

Volume 2. Module 2. Introduction to HSR
Volume 4. Module 2. Purpose and Uses of HSR

(The following notes summarize some of the main points that could be highlighted in the final presentation. The presentation should be flexible and take account of the content of the group presentations just given.)

1. **The purpose of HSR**

   The goal of national health development is to enable a country's people to reach at least the level of health that enables them to participate actively in the social and economic life of the communities in which they live. In collaboration with members of the community they serve, health managers at various levels of the health system need to make decisions related to the organization and administration of health and related services, the review of financing and budgeting systems, the selection and application of appropriate strategies and technologies, and to the planning and evaluation of programs developed. HSR provides information to support such decision-making.

2. **Comparison of HSR with clinical and biomedical research**

   Similarities

   HSR shares all the fundamental characteristics of research that are relevant to clinical and biomedical research.

   For example:

   - It is a systematic search for information and new knowledge.
   - Validity and reliability of research findings are a basic concern.
   - The basic steps in the research process are similar (e.g., objectives, literature review, selection of study type, sampling, collection and analysis of data, construction of findings, conclusions and recommendations).

Special characteristics of HSR

Its **focus is on priority problems** in health.

It is **participatory** in nature (i.e., health managers, health care providers and members of the community should participate with the researcher at various phases in the research process.)

It is **action-oriented** (i.e., it should result in action.)

It is **multisectoral** in nature because health development depends not only on health services but is influenced by many other factors as well (e.g., educational systems, agriculture, occupational factors, the economy, and social and cultural influences).

It needs an **integrated multidisciplinary approach** because the problems that are researched often require research skills from several disciplines (e.g., epidemiology, sociology, health economics and management, as well as the more traditional medical sciences).

It must be **cost effective**.

Research results must be **timely**.

It must provide information for **practical application**.

3. Who should do HSR?

Research that provides information to support policy decisions and decision-making at higher levels in the health system may require complex research designs and fairly large studies. Although it is often most appropriate that such research be conducted by professional researchers working in research or academic institutions, it is important that the principal investigators in such projects collaborate closely with appropriate health managers and service personnel.

Research information is also needed to support decision-making at the service delivery level (e.g., in health-care delivery units such as health centres, clinics and hospitals, and with district health teams). Such research can often be done by health-service personnel, although they may require technical assistance for certain aspects of their projects.

Note: During the closing presentation the facilitator should focus the group on the outcome of its discussion and encourage a sense of self-discovery, particularly concerning the level of consensus that is possible between participants who have very dissimilar backgrounds.

COMMENTS ON THE GROUP PROCESS

Describe to the participants the group process manoeuvre each of the facilitators executed during the group work session (i.e., to create a situation in which the trainer abandons the position of group leader without appointing an alternate leader). Invite the participants to comment on their own feelings during the process. Ask the other facilitators to share any observations they may have.

Comment on any of the following issues, as may be appropriate:

- The intrinsic assumption that the trainer is the group leader and the tendancy of the group to look to the trainer for "correct answers";
- The feelings of group members when there is weak or uncertain leadership and its effect on the learning process; and
- Strategies by which trainers can encourage a group to assume responsibility for its own leadership and progress.

Some of these issues will be discussed again during the sessions on the group process (Modules 5 and 13).

Handout 2.1. The purpose of HSR and its characteristics

1. Spend 15 minutes working individually to consider the following questions:
   - What is the purpose of HSR?
   - Compare HSR with clincical or biomedical research:
     - What are the similarities?
     - What are the special characteristics of HSR?
   - Who should do HSR?
2. Then each participant should be given a chance to make a brief presentation of his or her ideas (for approximately 15 minutes total).
3. Discuss the questions as a group (45 minutes). The group should be prepared to make a 5 minute summary of its ideas in plenary.

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 3:

CRITICAL APPRAISAL OF RESEARCH PROPOSALS

The rationale and content of the modules in this volume

Why have this module	Module	Content
To introduce training of trainers in HSR	Module 1: Orientation to the course	• Experienced researchers are not experienced trainers • Training skills are needed to train part-time researchers in non-academic settings • A "trainer" must be a manager, a teacher and a researcher
To review the purpose, scope, and uses of HSR	Module 2: Health systems research: a review	• Purpose of HSR • Similarities with other types of research • Special characteristics of HSR
To indicate what we expect in a research proposal	Module 3: Critical appraisal of research proposals	• Critique a proposal using a given set of guidelines
To provide an overview on designing a short course to train participants to do research	Module 4: Introduction to planning a course on designing and conducting HSR projects	• Outline of a course to: - Prepare research proposals; - Manage "fieldwork" (data collection); and - Analyze data, prepare and present reports. • Role of trainers • Principles of learning
To understand group process as a basis for facilitating group discussions	Module 5: The group process	• The group process • Types of behaviour in a group
To introduce the step-by-step approach adopted in the course on Designing and Conducting HSR Projects"	Module 6: Implementing selected steps in the research process	• Selection and analysis of research problems • Formulation of research objectives and selection of variables • Supervising a research project
To clarify the expected outcome of a learning experience for both the teacher and the learner	Module 7: Learning objectives	• Purpose of learning objectives • Construction of objectives

Module 3: CRITICAL APPRAISAL OF RESEARCH PROPOSALS

OBJECTIVES:

At the end of this module participants should be able to:

1. Critique a research proposal
2. Share perspectives concerning what components a good research proposal should include

CONTENTS

Information for module facilitators

Exercise: Critiquing a research proposal

Recording of the group process during the exercise (to be presented during Module 5)

MATERIALS

Handout 3.1. Critiquing a research proposal
Two samples of research proposals
Answer sheets for the critique of the sample proposals

INFORMATION FOR MODULE FACILITATORS

1. This module can be done in samll groups. Each group will go through the following steps:

   Individual reading of the sample proposals and critique using Handout 3.1.

   Group discussion: Sharing of critiques and opinions.

   The group facilitator will participate in the discussion and contribute points that have been overlooked by the group.

2. Select one of the two sample research proposals given in this Module for each of the participants to critique individually. The proposals include:[1]

   - A Study of the Training and Utilization of Health Personnel; and
   - A Study of Compliance with Diabetic Diet.

2. Make copies of Handout 3.1 (Critiquing a research proposal) and the sample research proposal selected for each participant.

3. Give the participants 15-30 minutes to read and critique the proposal individually.

4. Invite participants to share their critiques and discuss their opinions. If critical points have been missed, initiate discussion on these points. (Sample answer sheets are provided in Annexes 3.1 and 3.2.)

5. If possible, arrange for a facilitator or other observer to record the interactions between participants during the exercise on critiquing a research proposal. Handout 5.1, Group interactions and status relationships, can be used to guide the process. The diagrams made by the observers can be shared with the class as a whole during Module 5: The Group Process.

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[1] These sample proposals were reproduced from *Health systems research training course, trainers notes*. Joint World Health Organization/Royal Tropical Institute/Dutch Technical Cooperation Project on Health Systems Research for the Southern African Region. 1988. World Health Organization, Geneva, Switzerland. WHO/SHS/HSR/88.3.

Handout 3.1. Critiquing a research proposal.

Introduction

Imagine that you are the chairperson of a department in a health-training institution or that you are the director of the research unit in the ministry of health. You have received the research proposal outlined on the following pages and you must decide whether it should be supported with the research funds you have at your disposal.

As you read the proposal, think about the following questions:

Statement of the problem

1. Are the reasons for carrying out the study clearly stated in the section on background information?

Literature review

2. Is the literature review satisfactory? If not, what else could have been considered?

Methodology

3. Are the **data to be collected** as stated under methodology enough to provide answers to the problem? If not, what additional data are needed?

4. Are you satisfied with the **methods** proposed for **data collection**? Give your reasons.

5. Is the **process for selecting respondents for the questionnaire** stated clearly enough? Please give the reasons for your opinion.

Staffing and timing

6. Are the **personnel and time** for the study appropriate? Why or why not?

Other points

7. Can you suggest any **other points** which should be included or changed to make this proposal acceptable for funding?

SUMMARY OF A RESEARCH PROPOSAL

SAMPLE PROPOSAL NO. 1:
A STUDY OF THE TRAINING AND UTILIZATION OF HEALTH PERSONNEL

1. Title

"A study of the Training and Utilization of Health Personnel"

2. The Problem

Background situation

Country X is a small country of five million inhabitants situated in the less developed world. The health care policy of the government aims at providing all forms of health care (preventive, curative and educative) for the country's entire population on a total coverage basis. To achieve these lofty aims, efforts will be made:

- To train health personnel adequately and in sufficient numbers to cover all sections of the service at the centre and periphery; and

- To establish an adequate number of basic health service facilities for the predominantly rural population and support the progressive development of primary health care activities in the villages. There is a medical school attached to the only university in the country which trains doctors. In addition, there are four other polyvalent training institutions in the country which train state registered nurses, state certified midwives, medical assistants, as well as other middle and lower level health personnel. There is a good working relationship between the medical school and the ministry of health, with the latter using the former in a consultant capacity.

3. Review of the Literature

A review of the literature shows that while some studies have been carried out in North America on the use of nurse practitioners, no study of this type has been carried out in the region where country X is located.

4. Methodology

An assessment of the health needs of the population will be made, using reports and other data already available.

Descriptions of student terminal competence for the three categories of health personnel will continue to be collected or prepared at the institutions where the students are trained.

A suitable questionnaire will be elaborated, and dispatched to:

- All the doctors in the country (a total of 120 doctors); and

- All the nurses, midwives and medical assistants working in a random sample of 25% of the administrative districts of the country.

A suitable sampling procedure will be used. The questionnaire will explore the health workers' job descriptions, the tasks the workers are actually performing, the conditions in which they work and the amount and type of supervision they receive.

Completed questionnaires will be retrieved personally or the respondents will be asked to mail them in. The data processing will be carried out manually. Analysis will be made of the extent to which the health personnel in the three categories are using the training they received, and recommendations will be prepared concerning ways in which training, placement and job description, and/or supervision could be improved so that workers can better serve the needs of the population.

5. Project Personnel and Consultants

The head of the department of community health in the medical school will be director of the research project, devoting 20% of his time to the study. He will be assisted in the execution of the research by a small team made up of:

- The lecturer in biostatistics in the medical school (10% time);
- The chief of the division of training in the ministry of health (10% time);
- The principal of the health personnel training school in the capital (10% time); and
- A staff member principally responsible for training medical assistants at the health personnel training school (15% time).

In addition, an outside consultant will be engaged for 30 days during the final phase of the project to assist the project director and other members of the research team in data analysis and preparation of the research report.

6. Plan for Project Administration and Monitoring

The director of the research project will be responsible for managing the research grant, which will be operated through the university research account. He will be responsible for supervision of the work of the rest of the research team and will hire and supervise the outside consultant. Both the university and the donor agency will monitor the project to see that it is on schedule and achieving its goals through study of the questionnaires, interim report, financial records and final report.

7. Financing the Project

The project will be jointly financed by the government of Country X through the university and a donor agency. Those aspects of the budget to be financed by each party are indicated in the budget.

8. Budget

	Year 1	Year 2	Total
A. CONTRIBUTION OF THE HOST GOVERNMENT			
Personnel			
Project director (20% of time)	$3000	$3000	$6000
Biostatistician (10% of time)	$1500	$1500	$3000
Chief of division, ministry of health (10% of time)	$2000	$2000	$4000
Principal of the health personnel training school (10% of time)	$1500	$1500	$3000
Staff member of the health personnel training school (15% of time)	$1500	$1500	$3000
Subtotal	$9500	$9500	$19000
Other Direct Costs			
Office space, furniture, telephone, electricity	$2500	$2500	$5000
Subtotal	$2500	$2500	$5000
TOTAL FOR A:	**$12000**	**$12000**	**$24000**

	Year 1	Year 2	Total
B. CONTRIBUTION OF THE DONOR AGENCY			
Personnel			
Project secretary (100%)	$3000	$3000	$6000
Consultant (travel fees and per diem, 30 days)	-	$8000	$8000
Subtotal	$3000	$11000	$14000
Equipment and Supplies			
Duplicating machine	$1000	-	$1000
Resource material (books, etc.)	$500	$250	$750
Subtotal	$1500	$250	$1750
Data Analysis and Reporting			
Data analysis	$500	$1500	$2000
Subtotal	$500	$1500	$2000
TOTAL FOR B:	**$5000**	**$12700**	**$17750**
GRAND TOTAL	**$17000**	**$24750**	**$41750**

SUMMARY OF A RESEARCH PROPOSAL

SAMPLE PROPOSAL NO. 2: A STUDY OF COMPLIANCE WITH DIABETIC DIET

1. Title

"A study of Factors influencing Compliance with Diabetic Diet by Patients Referred to Dietetic Clinics."

2. The Problem

Country Y is a small country of one and a half million inhabitants situated in the tropics. The country is doing well economically, with annual growth of the GNP of 4%. Its main foreign currency generating activities are the production of sugar cane and cotton and light industry. 6% of the GNP is spent on health, including research.

The infant mortality rate has over the past 30 years gone down from 80 to 25 per 1000 live births. The health care policy of the country aims at providing all forms of health care (preventive, curative and educational) for the country's population on a total coverage basis.

The ministry of health has recently started dietetic clinics in three district hospitals, to which dispensaries and health centres as well as out-patient clinics of the hospitals and private physicians are supposed to refer their patients. One of the activities of these clinics is the provision of advice on diet. However, the attendance of patients to these clinics is not yet satisfactory.

3. Review of the Literature

A review of the literature shows that dietetic counselling can to a large degree control the maturity-onset type of diabetes that is associated with obesity. Few of these studies, however, have been carried out in developing countries, and in Country Y no such study has been conducted.

4. Methodology

A large national survey was conducted one year ago, assessing the prevalence and severity of noncommunicable diseases in the country. The preliminary results of this study indicate a high incidence of diabetes, hypertension and coronary heart disease, underlining the importance of dietary counselling. Final results of this survey will be made use of in the present study.

To measure how health staff and patients evaluate the newly established dietetic clinics, suitable questionnaires will be sent out to all doctors in the three districts, and a sample of 25% of all medical assistants and nurses involved in out-patient care at the three service levels in the districts (dispensaries, health centres and district hospital). Moreover, 10% of all diabetic patients registered in the three dietetic clinics will be interviewed.

Suitable sampling procedures will be used.

The questionnaires will explore to what extent health staff are aware of the newly established dietetic services, to what extent they refer patients, and how patients evaluate the dietetic services and the advice provided. Analysis will be done by hand. Recommendations will concentrate on how the newly established dietary counselling services can be made better known to health staff and the public and how the content of the counselling can be best adapted to the patients' needs.

5. Project Personnel and Consultants

The head of the department of community health in the medical school will be the principal investigator, devoting 20% of his time to the study. He will be assisted in the execution of the research by a small team made up of :

- The head of the nutrition unit within the ministry of health (10% time);
- The dietician attached to the MOH nutritional unit (20% time); and
- The lecturer in medical sociology of the department of community health (10% time).

An outside consultant, a statistician, will be engaged for 30 days during the final phase of the project to assist in data analysis.

6. Plan for Project Administration and Monitoring

The principal investigator will be responsible for managing the research grant, which will be operated through the university research account. He will be responsible for supervising the work of the rest of the research team and will hire and supervise the outside consultant.

7. Financing the Project

The project will be jointly financed by the government of Country Y through the university and a donor agency. Those aspects of the budget to be financed by each party are shown in the detailed budget.

8. Budget

	Year 1	Year 2	Total
A. CONTRIBUTION OF THE HOST GOVERNMENT			
Personnel			
Project director (20% of time)	$3000	$3000	$6000
Head, nutrition unit MOH (10% of time)	$2000	$2000	$4000
Dietitian, nutrition unit MOH (20% of time)	$2500	$2500	$5000
Lecturer, medical sociology (10% of time)	$1250	$1250	$2500
Subtotal	$8750	$8750	$17500
Other Direct Costs			
Office space, furniture, telephone, electricity	$2500	$2500	$5000
Subtotal	$2500	$2500	$5000
TOTAL FOR A:	**$11250**	**$11250**	**$22500**

	Year 1	Year 2	Total
B. CONTRIBUTION OF THE DONOR AGENCY			
Personnel			
Project secretary (100%)	$3000	$3000	$6000
Consultant (travel fees and per diem, 30 days)	-	$8000	$8000
Subtotal	$3000	$11000	$14000
Equipment and Supplies			
Duplicating machine	$1000	-	$1000
Resource material (books, etc.)	$500	$250	$750
Subtotal	$1500	$250	$1750
Data Analysis and Reporting			
Data analysis	$500	$1500	$2000
Subtotal	$500	$1500	$2000
TOTAL FOR B:	**$5000**	**$12750**	**$17750**
GRAND TOTAL	**$16250**	**$124000**	**$140250**

Annex 3.1: ANSWER SHEET FOR SAMPLE PROPOSAL NO. 1

QUESTION 1: Are the reasons for carrying out the study clearly stated in the section on background information"?

The reasons for carrying out the study are not clear since the problem has been poorly defined.

1. Indications should be given as to what "sufficient numbers" are for various categories of staff and to what extent these numbers have been reached. The need for additional information (concerning why these targets were not met, or even whether these targets were appropriate) should have been noted.

2. Indications should be given as to what the investigators mean by "adequate" training and, for example, why they fear that the training is less adequate than they would wish.

3. No objectives have been developed. Thus we still do not have a clear idea what the researchers hope to achieve through the study. (Note: This answer may be given here or in response to question 7.)

QUESTION 2: Is the literature review satisfactory?

The literature review is insufficient in several ways.

1. It is unlikely that there would not have been any study in this field. It appears that the proposal is based on an incomplete review. If the American study were the only one of this type, the conclusion should have been that such a study in Country X would be timely.

2. Literature should **never** be just stated, but rather analyzed carefully and, if appropriate, used to justify the study.

3. No references concerning the studies mentioned have been included.

4. Another point, which could be made here or under methodology, is that key informants can provide information on the problem. In addition, local MOH reports and evaluations related to the problem should be consulted. These reports exist. (See methodology.)

QUESTION 3: Are the data to be collected under the stated methodology enough to provide answers to the problem?

1. A major question with respect to adequacy of the training would be how the **content** of the training relates to the job descriptions and actual tasks carried out by the four types of health personnel mentioned. There is no mention of an analysis of the training programme's content.

2. Nowhere is it mentioned that the population has been involved in the needs assessment. The reports on which the assessment of the health needs of the population is based are neither discussed nor included.

QUESTION 4: Are you satisfied with the method proposed for data collection? Give your reasons.

Only one method (or technique) for data collection is mentioned (questionnaires for health staff). One could also consider:

1. **Interviews** with key figures (staff, health managers, policy makers, tutors of training schools) concerning how they think the training could be improved in relation to tasks now performed and in relation to needs of the population. (See question 2, point 4.) These interviews should preferably be conducted before drafting the questionnaire.

2. **Observations** of how staff actually perform the duties for which they were trained (to judge quality of training).

3. **Analysis of curriculum** (if not already mentioned under question 3).

QUESTION 5: Is the process for selecting people to be interviewed stated clearly enough?

1. The sampling procedure has not been defined.

2. The sample size (number of nurses, midwives and medical assistants to be interviewed) is unknown. Because of this, planning the manpower, time and money required for the study becomes impossible.

QUESTION 6: Are the personnel and time for the study allocated appropriately?

Personnel and time are poorly allocated:

1. The professional personnel mentioned have only a small fraction of their time allocated. Without research assistants it seems unlikely that the investigators will accomplish the study in a reasonable amount of time.

2. All researchers are health trainers. Health staff should also be involved in the study.

3. The project period has not been stated in the text. Only from the budget does it become clear that the project will last for two years.

4. **No work plan** has been made!

5. Consultant time seems poorly planned. If a consultant is to be used, that person should be involved at the beginning, not at the end (when possible short comings which become apparent during the data analysis cannot be corrected anymore).

QUESTION 7: Can you suggest any other points which should be included or changed to make this proposal acceptable for funding?

There are a number of other shortcomings. For example:

1. The proposal has no objectives.
2. There is no mention made of how the results will be disseminated or utilized.
3. The budget has some major omissions (costs for transport, field costs, reporting costs, contingencies).
4. The principal investigator should not be, at the same time, the principal administrator.
5. It is unclear who is requesting support for this research project.

Annex 3.2: ANSWER SHEET FOR SAMPLE PROPOSAL NO. 2

QUESTION 1: Are the reasons for carrying out the study clearly stated in the section on background information?

The reasons for carrying out the study are not clear since the problem has been poorly defined.

1. The authors of the research proposal have not explained why they suspect that non-compliance of patients with diabetic diets is a problem and what the possible causes could be.

2. Obviously, irregular or nonattendance at the dietetic clinic could be one of the reasons, but neither the magnitude nor possible causes of nonattendance have been indicated.

3. No objectives have been developed. Therefore, we have little idea of what the researchers are going to investigate and what they hope to achieve with the study results. (Note: This answer may be given here or in response to Question 7.)

QUESTION 2: Is the literature review satisfactory?

The literature review is insufficient in several ways.

1. No references have been included.

2. No effort seems to have been made to find similar studies conducted in developing countries. Even if such studies may not focus directly on compliance with diabetic diets or regularity of attendance at dietetic clinics, studies in related fields are most likely available (leprosy, TB services).

3. More information should have been provided about the **content** of the studies referred to, especially in relation to reasons for compliance or non-compliance with diabetic diets. Such an analysis of the literature, among other things, could provide a justification for the study.

4. Relevant local ministry of health reports and studies which, for example, provide estimates of the size of the diabetes problem, should have been included and analyzed here. (These reports do exist. See the section on methodology.) Interviews with key figures (the dieticians, for example) could have been mentioned here or under methodology.

QUESTION 3: Are the data to be collected under the stated methodology sufficient to provide answers to the problem? (noncompliance with diabetic diets)

How patients' compliance with **diabetic diets** will be evaluated is not mentioned. This is the most important omission of the study design: The title does not cover the content.

QUESTION 4: Are you satisfied with the method proposed for data collection? Give the reasons for your answer.

Only one method (or technique) for data collection is mentioned (questionnaire). One could also consider:

1. **Interviews** with key figures such as dieticians (if not already mentioned under question 3).

2. The **attendance records** should be analyzed in order to evaluate the size of the problem of non-attendance of diabetic patients at dietetic clinics and to distinguish different attendance categories of patients.

3. The **medical records** could give information on the seriousness of the disease, which most likely influence patients' compliance with diabetic diets.

QUESTION 5: Is the process for selecting people to be interviewed stated clearly enough?

1. No, the sampling **procedure** has not been defined.

2. Also, the sample **size** has not been calculated. Therefore it is impossible to plan the research (time and other resources needed).

QUESTION 6: Are the personnel and time for the study allocated appropriately?

Personnel and time are poorly allocated:

1. The professional personnel mentioned have only a small fraction of their time allocated. Without research assistants it seems unlikely that the investigators will accomplish the study in a reasonable amount of time.

2. The staff providing diabetic counselling should also be involved.

3. The project period has not been stated in the text. Only the budget provides an idea concerning the duration of the study.

4. **No work plan** has been made!

5. If the support of an external consultant is needed, that person should be involved in the beginning, not at the end (when possible short comings which become apparent during the data analysis cannot be corrected anymore).

QUESTION 7: Can you suggest any other points which should be included or changed to make this proposal acceptable for funding?

There are a number of other shortcomings. For example:

1. No objectives have been developed for the study.

2. There is no mention made of how the results will be disseminated or utilized.

3. The budget has some major omissions (costs for transport, field costs, reporting costs, contingencies).

4. The principal investigator should not be, at the same time, the principal administrator.

5. It is unclear who is requesting support for this research project.

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 4:

INTRODUCTION TO PLANNING A COURSE ON DESIGNING AND CONDUCTING HSR PROJECTS

The rationale and content of the modules in this volume

Why have this module	Module	Content
To introduce training of trainers in HSR	Module 1: Orientation to the course	• Experienced researchers are not experienced trainers • Training skills are needed to train part-time researchers in non-academic settings • A "trainer" must be a manager, a teacher and a researcher
To review the purpose, scope, and uses of HSR	Module 2: Health systems research: a review	• Purpose of HSR • Similarities with other types of research • Special characteristics of HSR
To indicate what we expect in a research proposal	Module 3: Critical appraisal of research proposals	• Critique a proposal using a given set of guidelines
To provide an overview on designing a short course to train participants to do research	Module 4: Introduction to planning a course on designing and conducting HSR projects	• Outline of a course to: - Prepare research proposals; - Manage "fieldwork" (data collection); and - Analyze data, prepare and present reports. • Role of trainers • Principles of learning
To understand group process as a basis for facilitating group discussions	Module 5: The group process	• The group process • Types of behaviour in a group
To introduce the step-by-step approach adopted in the course on Designing and Conducting HSR Projects"	Module 6: Implementing selected steps in the research process	• Selection and analysis of research problems • Formulation of research objectives and selection of variables • Supervising a research project
To clarify the expected outcome of a learning experience for both the teacher and the learner	Module 7: Learning objectives	• Purpose of learning objectives • Construction of objectives

Module 4: INTRODUCTION TO PLANNING A COURSE ON DESIGNING AND CONDUCTING HSR PROJECTS

OBJECTIVES

At the end of this module participants should be able to:

1. Describe in outline the objectives and content of a training course on Designing and Conducting HSR Projects.
2. Discuss the main features of the training approaches used in the course.
3. Identify the training materials available for the course and describe the uses of those materials.

CONTENTS

Reading before the Module

Facilitators who conduct this module should be familiar with Volume 2 and Modules 2, 3, 4, 6 and 9 in Volume 4 of this Training Series. Participants should read *Behavioural Challenges for Health Systems Researchers* by W. Hassouna. This paper is available in Module 9 in Volume 4 of the Series.

Objectives and structure of the training course (mini-lecture)

Group work: Steps in the research process

Recording of the group process during the group work (to be presented during Module 5).

Presentation of group work and outline of the short training course (plenary)

Role of trainers during the short course (lecture/discussion)

Reading after the Module

Volume 2 of this HSR Training Series provides the training materials needed for the training course. This material should be distributed to participants **after** this Module has been completed.

MATERIALS

Handout 4.1. Instructions for group work

Handout 4.2. Steps in proposal development, fieldwork, and data analysis and report writing

Handout 4.3. Steps in the research process for HSR: roles of researchers, managers, and the community

Copies of Volume 2 for distribution to participants after completion of the module.

OBJECTIVES AND STRUCTURE OF THE TRAINING COURSE (mini-lecture)

Introduction

There are many possible approaches to providing training in research methods. The approach adopted in the training course that will be discussed in this module is suitable for beginning researchers who have sufficient educational background to be trained to become principal investigators. The course could also be adapted for use in training health personnel who will serve as members of a research team, even though they may not acquire sufficient competence to become principal investigators and for training students who will design and conduct research as part of their studies.

Course structure

The training course has several components:[1]

Part I (2-2.5 weeks) (workshop)	Preparation of research proposal Design of instruments for data collection
Field research (4-6 months)	Collection of data (This is done at each participant's place of work in conjunction with his or her other duties.)
Part II (1.5-2 weeks) (workshop)	Data analysis and preparation of the report Presentation of findings and discussion with managers

Course objectives

At the end of this course, each participant should be able to:

1. Describe what HSR is and understand the contribution it can make towards solving priority problems in health care within the local context.
2. Prepare an HSR proposal.
3. Implement this proposal in his or her own working situation over a period of 4-6 months.
4. Analyze and interpret the results.
5. Prepare and present a final report including recommendations for implementation of the research findings.

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[1] If the course is used in the university setting the "workshop" structure may be revised and the modules given, one by one, on a weekly basis over a semester or other suitable period of time.

The approach used in the training course

The training course involves preparation of a research proposal in the field of HSR, collection and analysis of data, and presentation of the findings. It includes both theory and practice. The participants work in teams to design and implement research projects under supervision.

Each step in the research process is dealt with sequentially during the course with:

- A brief lecture/discussion on the theoretical basis of the step;
- An optional classroom exercise illustrating selected points;
- Group work on the participants' own research project;
- Presentation of the group work in plenary sessions; and
- Write-up of that part of the project by group members.

Expected outcomes

The **expected outcomes** of the training course include:

- An increase in the ability of participants to successfully complete each step in the research process;
- A number of completed research projects; and
- A clear appreciation by participants of HSR and its linkage to managerial decision-making.

GROUP WORK: Steps in the research process

Objectives:

To enable participants to:

1. Describe the research process.

2. Recognize the need for interaction during the research process between researchers and potential users of the research findings.

Methodology

Pass out Handout 4.1, Instructions for group work. Divide the participants into several small groups of 4-6 persons each, with a facilitator assigned to each group. Ask each group to:

1. Describe the research process by listing the steps involved in:

   - Preparing a research proposal;
   - Fieldwork (i.e., data collection); and
   - Analyzing data and preparing and presenting a research report.

2. Identify the role of health managers and the community in various phases of the research process in HSR.

Additional Clarification (for facilitators to use in guiding the groups):

The steps and their sequence

The purpose of this group work is for the participants to identify in outline the steps in the research process. It is not necessary for the groups to describe each step in detail (e.g., "formulate research objectives" would be one step). Also, it is not necessary that they devote much energy to determining the "correct" sequence of each and every step (e.g., whether variables should be identified before or after the selection of study type). The groups should aim at listing all the steps and agree to be flexible regarding the exact sequence, because in practice the sequence is not linear but cyclical, as will be clarified during the plenary.

Role of health managers

When considering the role of health managers, it is possible to group together a number of steps in the research process. It is for this reason that instruction no. 2 for group work refers to "phases" rather than "steps."

RECORDING OF THE GROUP PROCESS DURING THE GROUP WORK

Exercise No. 1 from Module 5 should be completed by an observer during the group work on Steps in the Research Process. Feedback on this exercise should be given during the presentation of Module 5.

PRESENTATION OF GROUP WORK AND OUTLINE OF THE SHORT TRAINING COURSE (plenary)

1. Each group will briefly present the results of its group work.

2. Discuss the group presentations. Pass out Handout 4.2. Compare the results of the group work with this flow chart which illustrates the steps in the research process as outlined in Volume 2 of this HSR Training Series. Draw attention to the fact that the research process starts with problem identification and analysis and ends with utilization of results. There are a number of identifiable steps in the research process and the training course consists of a series of modules dealing with each step in turn.

   Although these steps have been portrayed as sequential and linear in the diagram, in real life many steps are repeated. Thus the process is not purely linear. For example, objectives can be modified after selection of variables, selection of sample, etc. This should be taken into account during the training course. (Refer to Figure 4.1 which can be reproduced as two transparencies, with the arrows on the right reproduced as the second transparency and overlaid on the transparency showing the steps in the research process. This figure illustrates how a number of the steps are repeated as a proposal is being developed.)

3. Describe the need to involve health managers and health-care providers, as well as the community in the research process during HSR to:

   - Focus the research on problems that are perceived as priority issues;
   - Obtain administrative support for carrying out research projects within the health services; and
   - Motivate health managers, health-care providers and the community to eventually use research findings.

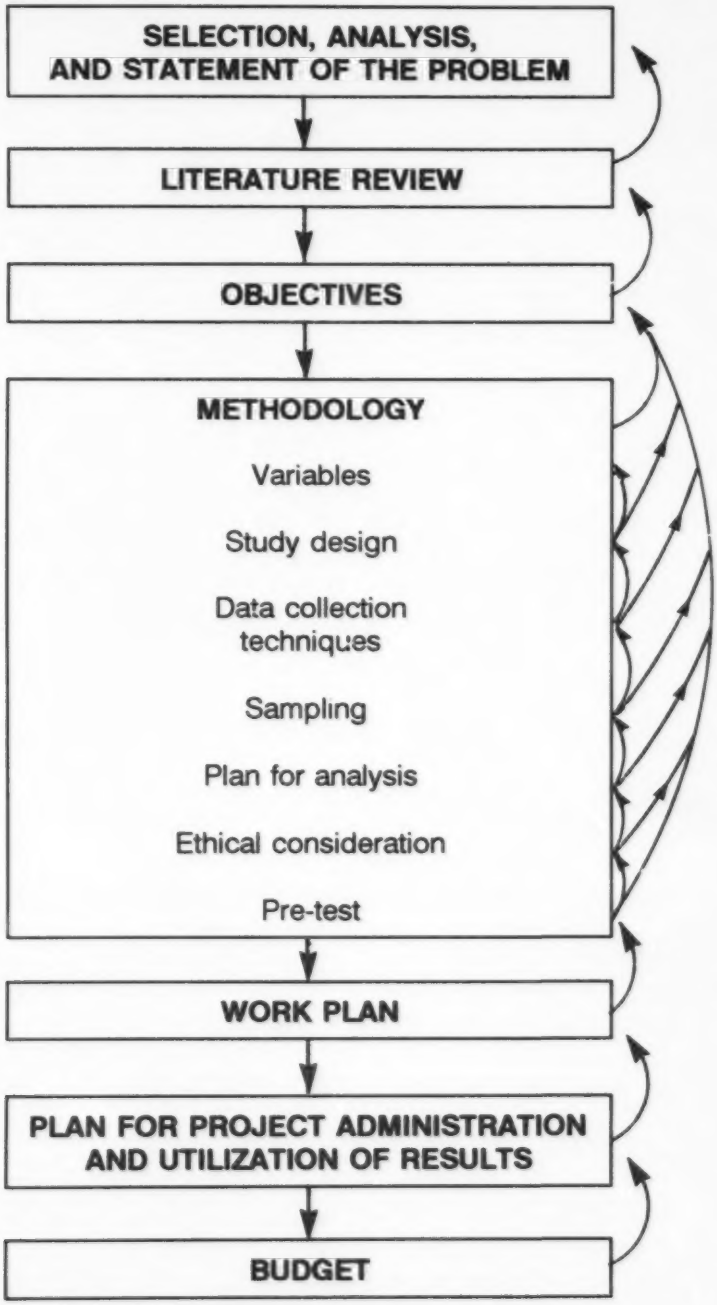
Summarize in broad terms the points made in Handout 4.3, Steps in the research process for HSR: role of researchers, managers, and the community, and pass it out as a reference.

ROLE OF TRAINERS DURING THE SHORT HSR COURSE (lecture/discussion)

During the HSR course, learning will take place in different types of situations:

- In classroom sessions involving all participants together (e.g., lectures, plenary sessions);
- In group discussions during which participants will work in small groups with one trainer per group; and
- During individual exchanges on a one-to-one basis (e.g., discussions, review of written work) during which trainers will interact with individual participants.

Figure 4.1: Preparation of the Research Proposal: Relationship of Various Steps



Emphasize that each trainer in the HSR course must:

- Facilitate the overall learning process for all participants (i.e., be a **teacher**);
- Guide the development and implementation of one research project by a small group (i.e., be a **project supervisor**); and
- Facilitate the group process for one group of participants so that every individual in that group obtains maximum benefit (i.e., be a "group mother").

Selection of topics for the research projects

A central feature of the course is that each participant will design and conduct a research project during the training period. It is important to ensure that suitable topics are selected for these projects so that the learning experience will be productive.

There are two possible approaches to the selection of the topics:

Method No. 1:

Prior to the training course the prospective participant and his or her supervisor/manager (e.g., the director of a health program or a health district) select a topic or problem that is of concern to them and on which research information is required.

If the trainers are using this approach, they should:

- Provide the prospective participant and his/her manager with guidelines and criteria for selecting projects, and
- Arrange for groups of participants to meet before the workshop and agree on common topics, so that the total number of projects during the workshop will not exceed 4-5. (Note: Each project requires one full time facilitator/trainer during the workshop.)

Method No. 2:

Participants are placed in small groups **during** the course and each group selects a topic using agreed-upon criteria.

Commonly used criteria for selecting topics are described in Volume 2, Module 3, in this HSR Training Series. Participants who have had no previous research experience will need guidance concerning the feasibility of completing their project within the given time period, taking into consideration the resources available to their team.

Advantages and limitations of each method

The first method has the advantage of involving managers in the research process, which enhances the support given to the researcher and increases the subsequent use of research findings.

One disadvantage is that the participants are sometimes assigned topics that the manager perceives as important, but concerning which the participant has only a very limited understanding. Also, it is difficult to persuade 20-25 prospective participants who come from different sites to agree to distribute themselves evenly between 4-5 agreed-upon topics.[2]

An advantage of selecting the topics during the course itself is that it is easier to limit the number of topics. In addition, since participants themselves select the topics, they will be familiar with them. However, such research projects may tend to be viewed merely as a course assignment by both participants and managers, and the opportunity to link research results with decision-making, which is so important, may be lost.

The use of technical resource persons

The topic selected for the research project may require additional technical expertise. For example, a research project on Compliance with Diabetic Diets might require the input of a nutritionist or a physician with expertise in endocrinology. In addition, a technical resource person (for example, a specialist in a subject such as biostatistics) may be needed for some sessions. Because such technical resource persons may not be familiar with the learning approaches and group processes that are in progress during the course, the trainer will also have to mediate and regulate their input.

Involvement of health managers in training courses

A training course provides an excellent opportunity to involve health managers so as to stimulate their interest, obtain their active support for HSR, and enhance the likelihood of the utilization of research results. The following strategies can be used to involve the managers.

- Request that health managers nominate members of their staff to attend the course.
- Ask health managers to select the topics for the research projects that will be completed by the participants. For this purpose, an abridged version of Module 3 on Identifying and Prioritizing Problems for Research, from Volume 2, Part I, can be sent to the manager with a suggestion that the selection be completed jointly with the prospective participant(s).
- Invite relevant managers and health service personnel to participate in the course session on Problem Analysis.
- At the end of Part I of the training course, participants will present their research proposals to a panel. Invite relevant health managers to be members of this panel along with some experienced researchers. This strategy provides a useful learning experience for:
  - The course participants who will become aware of the perceptions and expectations of both the managers and research panel members who are likely to evaluate research proposals for approval and funding;

[2] In some situations it is possible to arrange for participants to be chosen from only four or five sites and selected because they will serve as senior members of a team researching a priority problem they and their supervisors have identified. In this case, the selection of topics is not as difficult.

- The health managers who will learn about HSR, research approaches, and the type of information they can expect from research; and
- The experienced researchers who will learn about the priorities and expectations of health managers as well as the approaches used in HSR.

- During the fieldwork phase, facilitators should visit the health managers in the districts and institutions where course participants are doing their projects and brief them on progress and problems in the projects. This encourages a sense of ownership of the projects and is invaluable in generating support.

- Invite the managers who initially nominated participants and identified research topics to attend the workshop to serve on the panel when the report and draft recommendations are presented by participants. The managers' comments and reactions should be taken into consideration when the reports are finalized. Copies of the research reports should be sent through official channels to the respective managers by the organizers of the workshop.

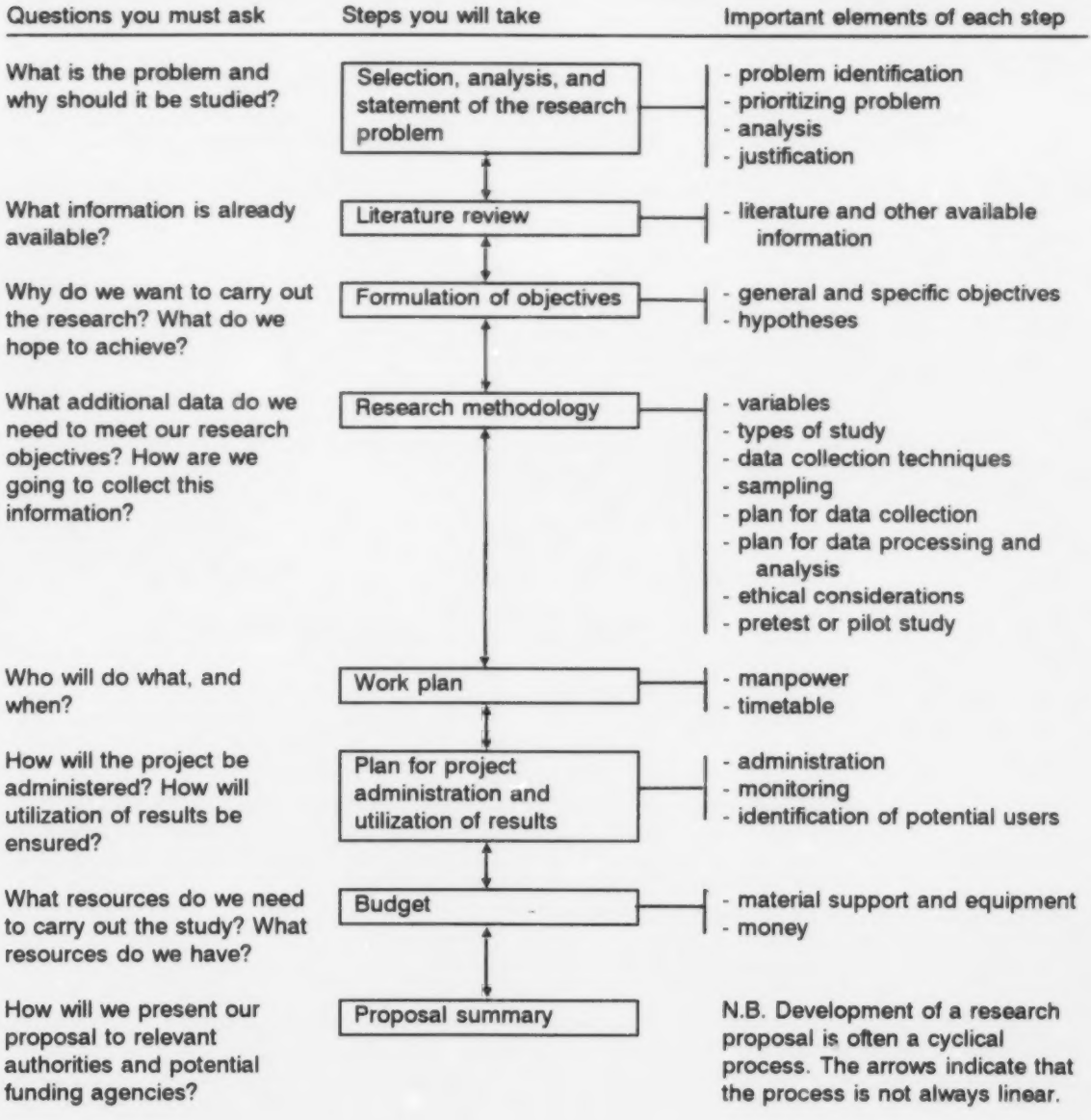
Handout 4.1. Instructions for Group Work

1. Describe the research process by listing the steps involved in:

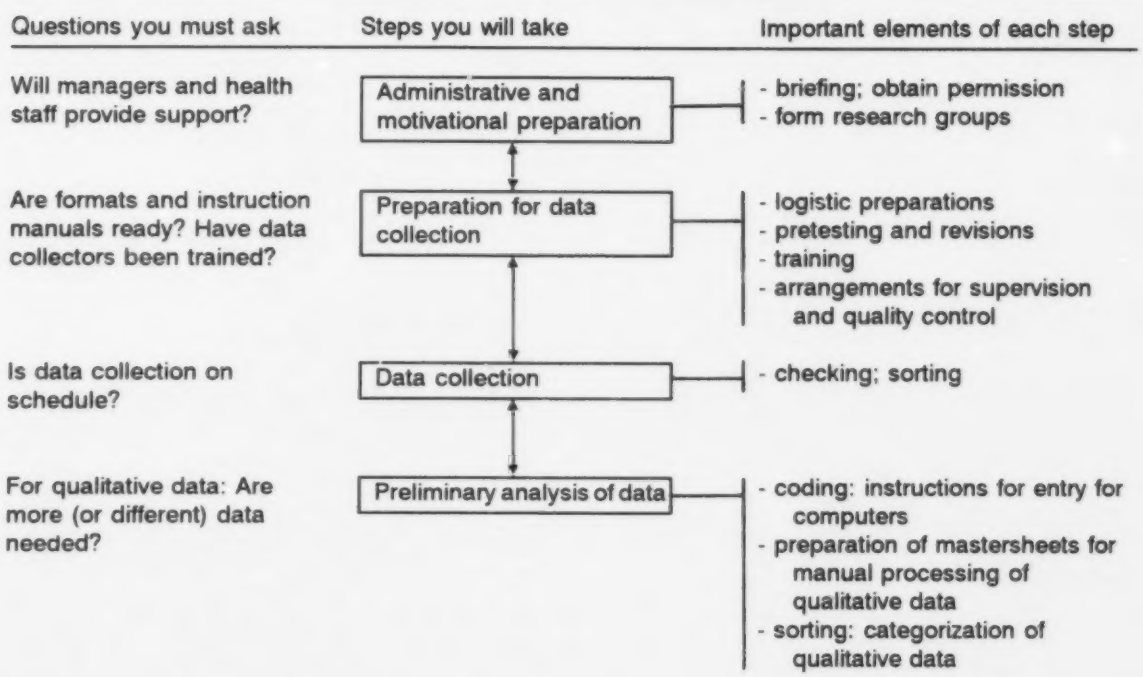
   - Preparing a research proposal;
   - Fieldwork (i.e. collecting data); and
   - Analyzing data and preparing and presenting a research report.

2. Identify the role of health managers and the community in various phases of the research process in HSR.

Handout 4.2. Steps in the Development of a Health Systems Research Proposal


Questions you must ask
Steps you will take
Important elements of each step
What is the problem and why should it be studied?
Selection, analysis, and statement of the research problem
- problem identification
- prioritizing problem
- analysis
- justification
What information is already available?
Literature review
- literature and other available information
Why do we want to carry out the research? What do we hope to achieve?
Formulation of objectives
- general and specific objectives
- hypotheses
What additional data do we need to meet our research objectives? How are we going to collect this information?
Research methodology
- variables
- types of study
- data collection techniques
- sampling
- plan for data collection
- plan for data processing and analysis
- ethical considerations
- pretest or pilot study
Who will do what, and when?
Work plan
- manpower
- timetable
How will the project be administered? How will utilization of results be ensured?
Plan for project administration and utilization of results
- administration
- monitoring
- identification of potential users
What resources do we need to carry out the study? What resources do we have?
Budget
- material support and equipment
- money
How will we present our proposal to relevant authorities and potential funding agencies?
Proposal summary
N.B. Development of a research proposal is often a cyclical process. The arrows indicate that the process is not always linear.

Handout 4.2. The Fieldwork Phase


Questions you must ask
Steps you will take
Important elements of each step
Will managers and health staff provide support?
Administrative and motivational preparation
- briefing; obtain permission
- form research groups
Are formats and instruction manuals ready? Have data collectors been trained?
Preparation for data collection
- logistic preparations
- pretesting and revisions
- training
- arrangements for supervision and quality control
Is data collection on schedule?
Data collection
- checking; sorting
For qualitative data: Are more (or different) data needed?
Preliminary analysis of data
- coding: instructions for entry for computers
- preparation of mastersheets for manual processing of qualitative data
- sorting: categorization of qualitative data

Handout 4.2. Steps in Data Analysis and Report Writing

Questions you must ask	Steps you will take*	Important elements of each step
What data have been collected for each research objective? Are data complete, accurate?	Prepare data for analysis	Review field experiences Inventory data for each objective/study population Sort data and check quality Check computer outputs
What do the data look like?	Describe variables	Frequency distributions Figures, means
How can the data be summarized for easy analysis?	Cross-tabulate quantitative data	Cross-tabulate in relation to objectives Graphic displays, narratives
	Summarize qualitative data	
For quantitative data: does each research objective aim to describe, compare, or find associations?	Determine the type of statistical analysis required	Review objectives, study type, and variables Statistical description of variables Choosing significance tests
1. How can the data be described?		
2. How can differences between groups be determined?	Analyze paired and unpaired observations	**Student's t-test **Paired t-test **Chi-square test **McNemar's chi-square test
3. How can the associations between variables be determined?	Measure associations between variables	**Scatter diagram **Regression line and correlation coefficient **Relative risk, odds ratio
How should the report be written?	Write the report and formulate recommendations	Prepare outline for report Draft and redraft Summarize findings Summarize conclusions for each objective Formulate recommendations Prepare abstract
How should the findings and recommendations be presented and disseminated?	Present a summary and draft a plan for implementation of recommendations	Discuss summaries with different target groups Discuss plan for implementation

* These steps need not be in the sequence in this diagram. The sequence may be adjusted according to the needs of the workshop.

** These elements are optional and may be omitted if not relevant in a particular course.

Handout 4.3. Steps in the Research Process for HSR: Roles of Researchers, Managers and the Community[3] [4]

PLANNING THE RESEARCH

Components of protocol	Roles of researchers, managers, and the community
1. Title	
Should be brief but sufficiently descriptive.	Make a **joint decision**. It is useful to defer the decision until the objectives and scope have been clarified.
2. Background	
Brief description of the problem and its importance.	Have **joint discussion** session to determine: • **What type** of information will assist managers or community leaders in making decisions regarding the problem. For example: - cause of the problem; - factors contributing to the problem; - relative importance of various factors; and - comparative effectiveness of various solutions. • Can existing statistics be analyzed to provide the necessary information? • Can research provide the type of information the manager or the community needs? • How will managers or the community use the information when they receive it? (i.e., What actions will they be able to take based on the results?)

[3] Indra Pathmanathan.1985. Adapted from The HSR Process. In *Report on the national workshop on the integration of health systems research and management*. Ministry of Health, Kuala Lumpur, Malaysia.

[4] Research on certain issues or problems is most relevant and effective if appropriate community representatives are actively involved in the research process.

PLANNING THE RESEARCH (continued)

Components of protocol	Roles of researchers, managers, and the community
3. Literature review	
Summary of published and unpublished information relevant to: • Understanding the problem; and • Methods of investigating or resolving the problem.	**Researchers** to search for and review literature, documents, and files, and to discuss in depth with people who have first hand experience of the problem. **Managers** to search for related circulars, guidelines, minutes of meeting, reports of conferences, etc., and make available to researchers. **Community decision-makers** to indicate what information on the problem can be gathered from knowledgeable groups and individuals in the local area.
4. Objectives	
Statement of the objectives or aims of the research, (i.e. what information will be obtained and how it will be used).	**Joint description** by researchers, managers, and community decision-makers when appropriate.
5. Approach	
Scope (how much to include within the research project. For example: • the number and type of problems; • the number of categories of populations/services; and • the number of months/years to be studied.	**Joint decision** by managers and researchers based on: • Availability of resources; • Feasibility of collecting valid data; • Nature of the problem being studied; and • Urgency with which results are needed. **Community decision-makers** to participate in discussions if research focuses on problems of importance to the community.
Research design Selection of study type and development of the research design.	**Researchers** to decide, based on the nature of the problem, objectives of research, the type of information required, and the resources available. Managers and community decision-makers to review for feasibility and ethical considerations.

PLANNING THE RESEARCH (continued)

Components of protocol	Roles of researchers, managers, and the community
Methodology for data collection • Types and characteristics of data to be collected (e.g., sociodemographic data, health status, knowledge, opinion types, cost of health resources or interventions). • Methods of data collection and instruments (e.g., interview, review of records or cards, observation of behaviour).	**Researchers** to decide after discussion with managers and, where relevant, community members concerning: • Objectives and design of the research project; • Expected outcomes of the research; and • Operational feasibility of various methods of data collection.
Data processing (i.e., compilation of the data into tables manually or by computer).	**Researchers** to determine method and cost. **Managers** and **community leaders** to assist researchers (if necessary) to contact relevant resources and make administrative arrangements.
6. Budget • Personnel and allowances (e.g., for meals and lodging during field visits). • Equipment and materials (e.g., vehicles, calculators, office supplies). • Data processing costs.	**Researchers** to work out details. **Managers** to: • Review budget to determine whether it is possible to absorb costs through internal adjustments and temporary redeployment of resources. • If costs cannot all be absorbed, to consider with researchers whether suitable funding agencies can be approached by either researcher or manager.

IMPLEMENTATION OF HSR PROJECTS

Activities during implementation	Roles of researchers, managers, and the community
1. Review and revision of the protocol in accordance with resources actually allocated to the project	**Researchers** to review and discuss proposed revisions and their implications with **managers**.
2. Design and pretesting of instruments and methodology	**Researchers** to pretest with input from computer programmer or statistician (if necessary).
3. Selection of sample	**Researchers** to select with guidance from statistician (if necessary).
4. Preparation of manual for data collection	**Researchers** to prepare the manual.
5. Design of tables for compiling data	**Researchers** to prepare in consultation with data processing personnel.
6. Training of interviewers and data collectors	**Managers** to make resources available in accordance with approved project plan including, for example: - Manpower for data collection/interviewing; - Training facilities; and - Support for training costs. **Researchers** to do training. **Community members and health service personnel** to serve, when appropriate, as data collectors.
7. Preparation of data collection areas	**Managers** to make the necessary administrative arrangements including, for example: - Sending information circulars to staff; - Disseminating information to public/patients; - Providing physical facilities for data collection, interviewing, storage, etc.; - Making transport arrangements; and - Reallocating duty rosters to facilitate temporary assignments for staff.

IMPLEMENTATION OF HSR PROJECTS (continued)

Activities during implementation	Roles of researchers, managers, and the community
Preparation of data collection areas (continued)	**Community leaders or representatives** to make arranagements for: • Data collection in the community; and • Notification of other community authorities. **Researchers** to liaise with managers regarding specific requirements of the project.
8. Collection of data	**Researchers** to monitor and supervise data collection and identify and resolve operational problems. **Managers** to help solve operational problems and provide administrative authority and support for the data collection process, for example, by providing access to records, boosting morale and providing transport and, if appropriate, staff for the data-collection process. **Community decision-makers** to identify community volunteers or workers to collect data when appropriate.
9. Checking and editing of completed formats	**Researchers** to organize and supervise logistics. **Managers and community** to provide manpower and physical facilities.
10. Data processing	**Researchers** to liaise with data processing personnel.
11. Analysis of data and preparation of draft report	**Researchers** to analyze data, derive conclusions pertinent to the objectives of the project, and prepare draft report.
12. Discussion of draft report	**Researchers, managers,** and **community decision-makers** to discuss draft report to consider validity and relevance of findings and recommendations.

IMPLEMENTATION OF HSR PROJECTS (continued)

Activities during implementation	Roles of researchers, managers, and the community
13. Final report	**Researchers** to prepare and present report to relevant authorities and communities.
14. Policy decisions concerning follow-up action	**Managers and community decision-makers** who are in the relevant positions of authority to decide on follow-up action based on: • Validity and relevance of report, • Priority of problem and recommendations, and • Feasibility of follow-up action. **Researchers** to provide clarification on validity and relevance (if necessary).

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 5:

THE GROUP PROCESS

The rationale and content of the modules in this volume

Why have this module	Module	Content
To introduce training of trainers in HSR	Module 1: Orientation to the course	• Experienced researchers are not experienced trainers • Training skills are needed to train part-time researchers in non-academic settings • A "trainer" must be a manager, a teacher and a researcher
To review the purpose, scope, and uses of HSR	Module 2: Health systems research: a review	• Purpose of HSR • Similarities with other types of research • Special characteristics of HSR
To indicate what we expect in a research proposal	Module 3: Critical appraisal of research proposals	• Critique a proposal using a given set of guidelines
To provide an overview on designing a short course to train participants to do research	Module 4: Introduction to planning a course on designing and conducting HSR projects	• Outline of a course to: - Prepare research proposals; - Manage "fieldwork" (data collection); and - Analyze data, prepare and present reports. • Role of trainers • Principles of learning
To understand group process as a basis for facilitating group discussions	Module 5: The group process	• The group process • Types of behaviour in a group
To introduce the step-by-step approach adopted in the course on Designing and Conducting HSR Projects*	Module 6: Implementing selected steps in the research process	• Selection and analysis of research problems • Formulation of research objectives and selection of variables • Supervising a research project
To clarify the expected outcome of a learning experience for both the teacher and the learner	Module 7: Learning objectives	• Purpose of learning objectives • Construction of objectives

Module 5: THE GROUP PROCESS

OBJECTIVES

At the end of the module participants should be able to:

1. Recognize the value of small group discussions in the learning process during HSR courses.
2. Describe the group process and identify behaviours that contribute to an effective group.
3. Recognize the particular characteristics of small groups in HSR courses.

CONTENTS

Information for the module facilitator

The group process (lecture/discussion)

Presentation of results from Exercise 1

Completion and reporting of Exercise 2

Completion and reporting of Exercise 3

MATERIALS

Handout 5.1. Exercise 1. Observation of group interaction and status relationships

Handout 5.2. Exercise 2. Observation of behaviour in a group discussion

Handout 5.3. Exercise 3. Effective groups

INFORMATION FOR THE MODULE FACILITATOR

Small group discussion is the teaching-learning method that is most frequently used in the HSR Training Series. The success of each course is very dependant on the ability of trainers to facilitate the small group discussion sessions.

An introduction to the theoretical basis of facilitating group discussion is presented in this module. In previous modules (2 and 4) exercises were inserted to stimulate participants to take note of various aspects of the group process during their own group discussions. Experiences from those sessions should be used to illustrate the theoretical concepts that are presented in the lecture sessions. In addition, participants should be invited to contribute illustrative examples from their own experiences either during the workshop or from the past. In subsequent sessions, the opportunity will be created for participants to apply several aspects of theory to group discussions in which they themselves will be either participants or observers. Suggestions for such exercises have been inserted in the relevant sessions. These practical participatory exercises are important, as they enable prospective trainers to gain insight and develop group-management skills that will be crucial when they facilitate courses in HSR.

THE GROUP PROCESS (lecture/discussion)

What is a small group session?

It is an informal discussion among participants. Its purpose is to:

- Relate new information to what is already known;
- Encourage the processing of knowledge and skills; and
- Provide opportunity for the application of knowledge and skills.

It develops:

- Knowledge,
- Attitudes, and
- Skills.

Role of the facilitator in a small group session

The facilitator has to:

- Create a group from individuals;
- Maintain the group; and
- Focus the attention of the group on its task.

The facilitator is a leader, supervisor, and change agent. Therefore, a facilitator must be able to:

- Understand the group process; and
- Facilitate learning in small groups.

Group process

The **group process** occurs along two dimensions:

- Content or "**task**" (i.e., what the group has to do); and
- Socioemotional or "**process**" (i.e., how members relate to each other and the feelings that are generated).

The **behaviour of members of the group may be described as**:

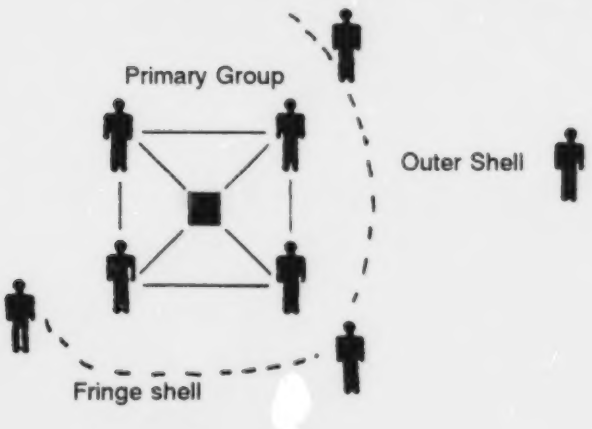
- Task functional (i.e., helping complete the task);
- Maintenance functional (i.e., helping facilitate the process); or
- Dysfunctional (i.e., harming the group or doing nothing to help it).

When individuals form a group, they go through a series of four phases. The first two are:

- "**Forming**" during which there is a tentative exploration of each other's ideas; and

- "**Storming**" during which there is a mild antagonism between members while they establish their relative status within the group. "Status" may be described as "leader," "primary group," "fringe," and "outer shell" as illustrated in Fig. 5.1.

Figure 5.1. Small group status relationships.[1]



The status relationships between group members can be illustrated, to a certain extent, by noting the patterns of communication in the group. Later in this session we'll look at recording of the patterns of communication from some of our earlier sessions.

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[1] Adapted from Halmann, T. and Scott, W.G. 1970. Management in the modern organization. Houghton Mifflin, Boston, MA, USA. p. 433.

The last two phases individuals go through when forming a group are:

- "**Norming**" during which the network of statuses becomes accepted; and
- "**Performing**" during which the members perform the task **and** work together socially.

If the group does not negotiate these phases successfully, it will tend to disintegrate because some members leave or withdraw themselves.

Types of behaviour during the group process

The interaction of group members can be described as various types of behaviour. Summarize the following types of behaviour and give examples from the course. Also invite examples from participants to illustrate each type of behaviour.

Task functional behaviours
The types of behaviour which assist the group in its task function include:

- Information seeking or giving,
- Opinion seeking or giving,
- Initiating activity (starting a discussion, proposing an activity),
- Clarifying or elaborating,
- Coordinating (highlighting the relationship between ideas),
- Summarizing,
- Consensus testing ("sending up trial balloons" to test whether the group has arrived at consensus on an idea).

If a group facilitator is able to skilfully assist the group and knows when to make each type of intervention, it helps the group members to clarify and evaluate their own knowledge and perceptions and develop logical and critical thinking skills.

Maintenance functional behaviours
Examples of behaviour that support and facilitate the socioemotional group process include:

- Encouraging (being friendly, warm, responsive, giving praise, offering ideas, agreeing with ideas offered by others),
- Enabling (recognizing distortions in communication, keeping communication channels open, and helping others to contribute),
- Harmonizing (reducing and rationalizing misunderstandings, reducing tension by jokes, placing issues in a broader context, mediating between opposing ideas),
- Compromising (playing down differences, emphasizing similarities, admitting errors, offering to compromise one's own status or position, disciplining oneself),
- Encouraging expression of group feelings (sharing one's own feelings, seeking group reactions, empathizing with others),
- Standard setting (expressing views on what the group should achieve or how to assess its achievement),
- Evaluating (comparing the group's achievement to its goals).

Dysfunctional behaviour
Invite participants to contribute examples of dysfunctional behaviour. Some examples include:

- Dominating the group (talking too much, insisting on one's own point of view),
- Withdrawing (falling silent, moving around or leaving the group),
- Distracting (introducing extraneous or unrelated ideas, having private conversations),
- Displaying strong disruptive emotions (expressing anger, ridiculing other group members).

Aspects of group process

To **understand** the group process the facilitator can observe several aspects of it. Examples include:

The pattern of interaction

- Who talks to whom, how,
- Body language.

Inferences

- The feelings and attitudes of members,
- What members do to each other.

Leadership patterns

- Who talks the most as opposed to who is listened to,
- Whose suggestions are accepted,
- Whether the leadership role is dominated by one person or whether it is assumed by different group members at different times,

The decision-making process

- Whether decisions are made by one or two members on behalf of the group,
- Whether the majority overrules the opinions of a few,
- Whether consensus is reached.

Group atmosphere

- Whether it is comfortable, relaxed, informal, non threatening, or tense, threatening, etc.

The characteristics of an effective group are:

- It functions in a comfortable nonthreatening atmosphere;
- Everyone participates and makes contributions pertinent to the task;
- The task is well understood;
- Disagreement is not suppressed or overridden, but examined rationally;
- Decisions are reached by consensus;
- Criticism is frank and open;
- Members are free to express their feelings;
- Clear assignments are made and completed; and
- Neither the chairperson or facilitator dominates the group.

PRESENTATION OF RESULTS FROM EXERCISE 1

Group Interaction and Status Relationships

Exercise 1 (described in Handout 5.1) will have been used to analyze group discussion sessions in Modules 2 and 3. Present the results from Exercise 1, using the transparencies that have been prepared by the appointed observers who recorded group interactions during these earlier group sessions. The transparencies, if displayed as a progressive overlay, will provide a sound impression of the degree of participation and interaction of different members and enable members to draw their own conclusions regarding status relationships.

In addition, if the figures in Annex 5.1 provide illustrations of types of group interaction not covered by the transparencies produced during the course group session, show them on transparencies.

COMPLETION AND REPORTING OF EXERCISE 2

Exercise 2 (Handout 5.2) can be passed out to participants during the presentation of this module or later. They can be asked to observe and record examples of the various types of behaviours listed in the exercise during one or more of their group sessions, and to then share them with other participants and the facilitator(s), either at the end of the group session or during one of the future plenaries.

This exercise is useful in providing participants with practice in consciously observing various task functional, maintenance functional, and dysfunctional behaviours as they occur in their own working groups. Hopefully they can be encouraged to try out some new "functional" behaviours and assist in minimizing dysfunctional aspects of their group's interactions.

COMPLETION AND REPORTING OF EXERCISE 3

Exercise 3 (Handout 5.3) can be passed out to participants during the presentation of this module or later. The questionnaire presented in the exercise can be used by participants at the end of a selected group discussion session to evaluate the group process and its effectiveness.

Each of the exercises is optional. How and when they are used will depend on the needs of the participants in a particular training of trainers course and the time available for exercises of this type.

Handout 5.1. EXERCISE 1: Group interaction and status relationships.

OBJECTIVES

To enable participants to:

- Recognize patterns of interaction and status relationships during the group process,
- Identify specific types of interventions that have been contributed by various members of the group.

METHODOLOGY

The exercise should be repeated several times during the course. It can be done either by:

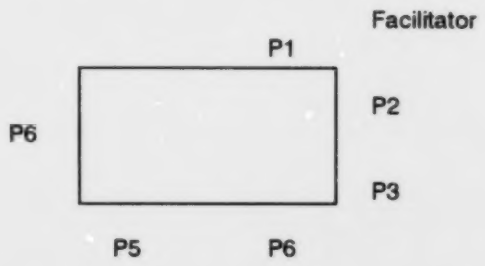
- Assigning one or two members of the group to observe a group discussion and give feedback to the group at the end of the session; or
- Appointing a facilitator to do the observation and give the feedback.

This exercise can be performed during one or more of the small group discussion sessions in Module 3, Critique of Research Proposals, and Module 4, Introduction to Planning a Course on Designing and Conducting HSR Projects. Feedback on the results can be given to the group during the presentation of this module.

It may be beneficial to do the exercise several additional times during the course, with exact timing depending on the educational needs of participants.

PROCESS

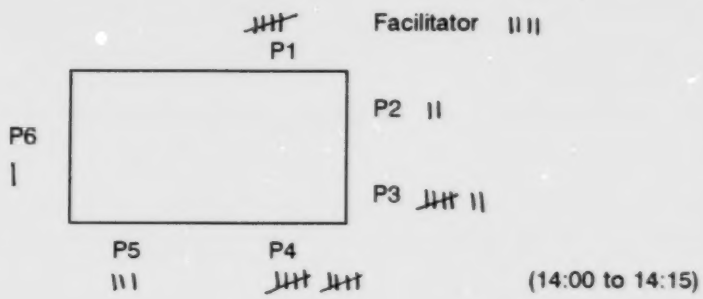
1. Start with a diagram of the seating position of participants. For example:



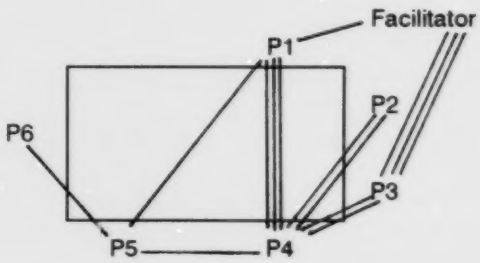
Use an overhead projector (OP) transparency so that the results can be shown immediately after the session.

2. Using a new OP transparency and a different colour for every 10-15 minutes of interaction, record every contribution made by a member.

   For example:



3. If there is an interchange between two members, draw a line between them to indicate it. Draw a new line for each interchange. Note that if a question or remark is addressed to the group in general, it is recorded in the tally for the individual concerned, but no connecting line is drawn (i.e., it is not an interchange between two members).



4. At the end of the session, there will be a series of transparencies, which, if displayed as a progressive overlay, will provide a visual impression of the degree of participation and interaction of different members and their interactions, and enable members to make their own conclusions regarding status relationships.

   It will help members analyze their own emotions and compare the visual record with their own subconscious observations.

   See Annex 5.1 for illustrations.

Handout 5.2. EXERCISE 2: Observation of behaviour in a group discussion.

Record examples of the following types of behaviour during the group discussion. Be prepared to describe your examples at the end of the session:

Task functional behaviours

- Information seeking and giving,
- Opinion seeking and giving,
- Initiating activity (starting discussion, proposing an activity),
- Clarifying or elaborating,
- Coordinating (clarifying the relationship between ideas),
- Summarizing,
- Consensus testing ("sending up trial balloons" to test whether the group has arrived at consensus on an idea).

Maintenance functional behaviours

- Encouraging (being warm, friendly, responsive, giving, praising, agreeing with ideas offered by others),
- Enabling (recognizing distortion in communication, keeping communication channels open, and helping others to contribute),
- Harmonizing (reducing and rationalising misunderstandings, reducing tension by jokes, placing issues in a broader context, mediating between opposing ideas),
- Compromising (playing down differences, emphasizing similarities admitting errors, offering to compromise one's own position, disciplining oneself),
- Encouraging expression the group's feelings (sharing one's own feelings, seeking the group's reactions, empathizing with others),
- Standard setting (expressing views on what the group should achieve or how to assess its achievement),
- Evaluating (comparing the group's achievement to its goals).

Dysfunctional behaviour

- Dominating the group (talking too much, insisting on one's own point of view),
- Withdrawing (falling silent, moving around or leaving the group),
- Distracting (introducing extraneous or unrelated ideas, having private conversations),
- Displaying strong disruptive emotions (expressing anger, ridiculing other group members).

Example of a recording

Information seeking:

Mr S. The major problem is lack of feedback.
Dr G. Can you give an example of what you mean by that?

Initiating activity:

Ms Z. Why don't we try to draw a flow-chart of what happens to a patient from the time she enters the clinic till she leaves it.

Note: This exercise should be done **at least** twice so that participants gain proficiency in recognizing behaviour and internalize their observations.

Handout 5.3. EXERCISE 3: Effective groups.

Purpose of the exercise:

To enable participants to observe and evaluate several aspects of the group process.

Instructions:

1. Distribute the following questionnaire at the end of a selected group discussion session and request members to complete and return it immediately to the chairperson.

Questionnaire on Group Process

Recall the group process during your group work on _____ and indicate how strongly you agree or disagree with the following statements.

		Strongly disagree				Strongly agree
1.	Atmosphere was very comfortable, informal and relaxed.	1	2	3	4	5
2.	Everyone participated; participation was relevant to the task.	1	2	3	4	5
3.	Members listened to each other.	1	2	3	4	5
4.	Disagreement was not suppressed; Reasons were examined.	1	2	3	4	5
5.	Decisions were made by consensus.	1	2	3	4	5
6.	Criticism was frank, frequent and comfortable.	1	2	3	4	5
7.	Members were free to express feelings.	1	2	3	4	5
8.	Clear assignments were made.	1	2	3	4	5
9.	The group accomplished its task.	1	2	3	4	5
10.	Chairperson did not dominate, leadership shifted from time to time.	1	2	3	4	5

2. Analysis of perceptions of group members (to be completed by chairperson).

	Sum of individual scores	**Total possible score**
Item 1		
Item 2		
Item 3		
Item 4		
Item 5		
Item 6		
Item 7		
Item 8		
Item 9		
Item 10		

3. The results of the analysis should be shared with the group. Consider:

   - Which item(s) had the lowest score(s)?
   - How could these aspects of the group process be strengthened during subsequent sessions?

References

Cox, K.R., and Ewan, C.E. 1982. How to improve small group teaching in medicine. In The medical teacher. Churchill Livingstone, New York, NY, USA. pp. 70-78.

Brownlee, A., Nchinda, T. C., and Mousseau-Gershman, Y. 1983. Course guide for trainers and administrators, WHO/AFRO-SHDS Health Services Research Course. Boston University Health Policy Institute, Boston, MA, USA.

Luthan, F. 1981. Organizational behaviour (3rd ed.). McGraw Hill, New York, NY, USA.

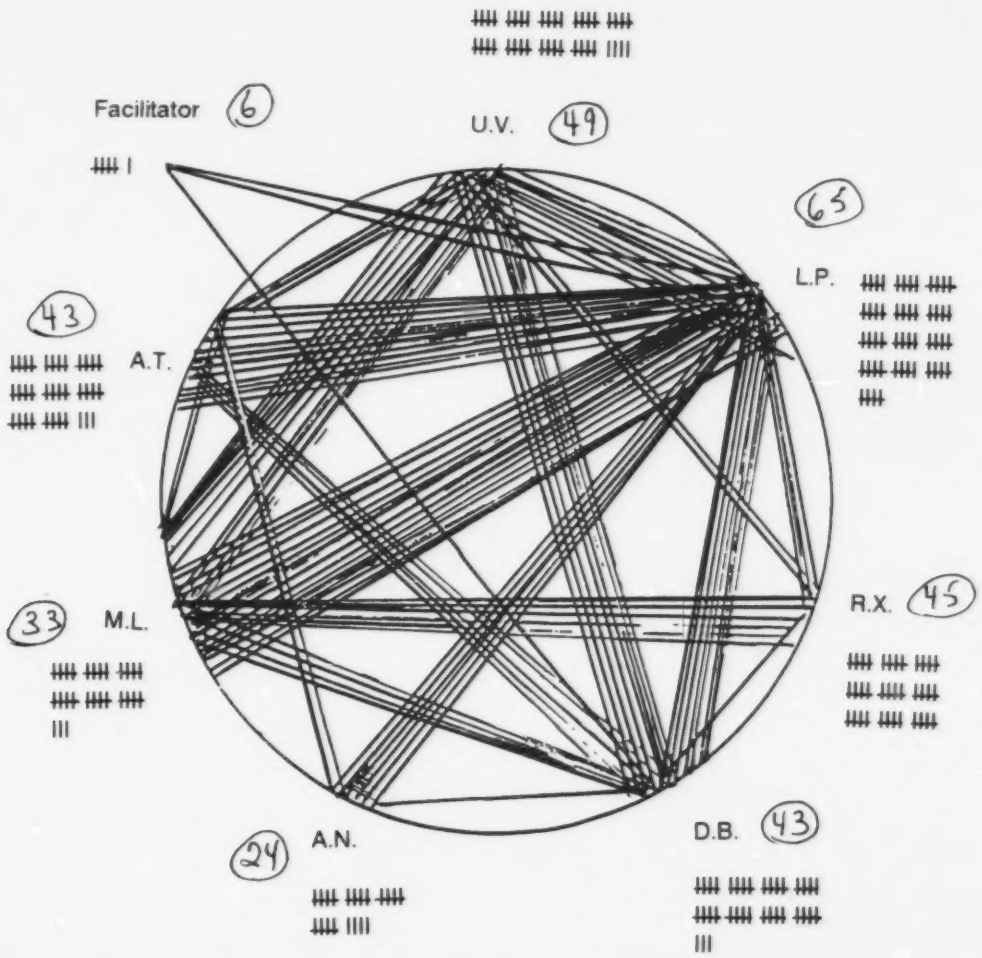
Myers, G.E. and Myers M.T. 1980. The dynamics of human communication: a laboratory approach (3rd ed.). McGraw Hill, New York, NY, USA.

McGregor, D. 1960. The human side of enterprise. McGraw Hill, New York, NY, USA.

Robbins, S.P. 1984. Management: concepts and practices. Prentice Hall, Englewood Cliffs, NJ, USA.

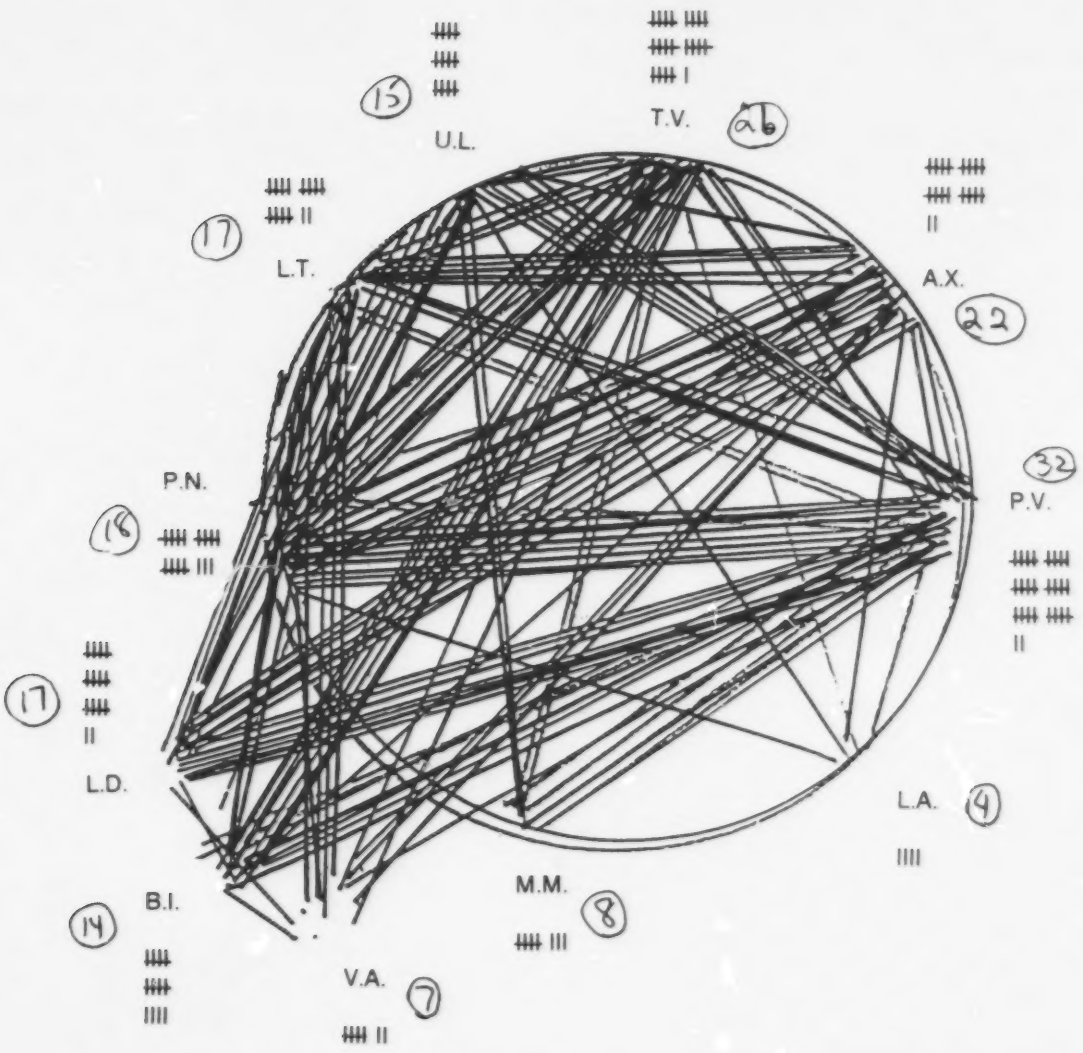
Annex 5.1. Example of recordings of group interactions.

Group A: Group functioning well, with minimal input from the facilitator

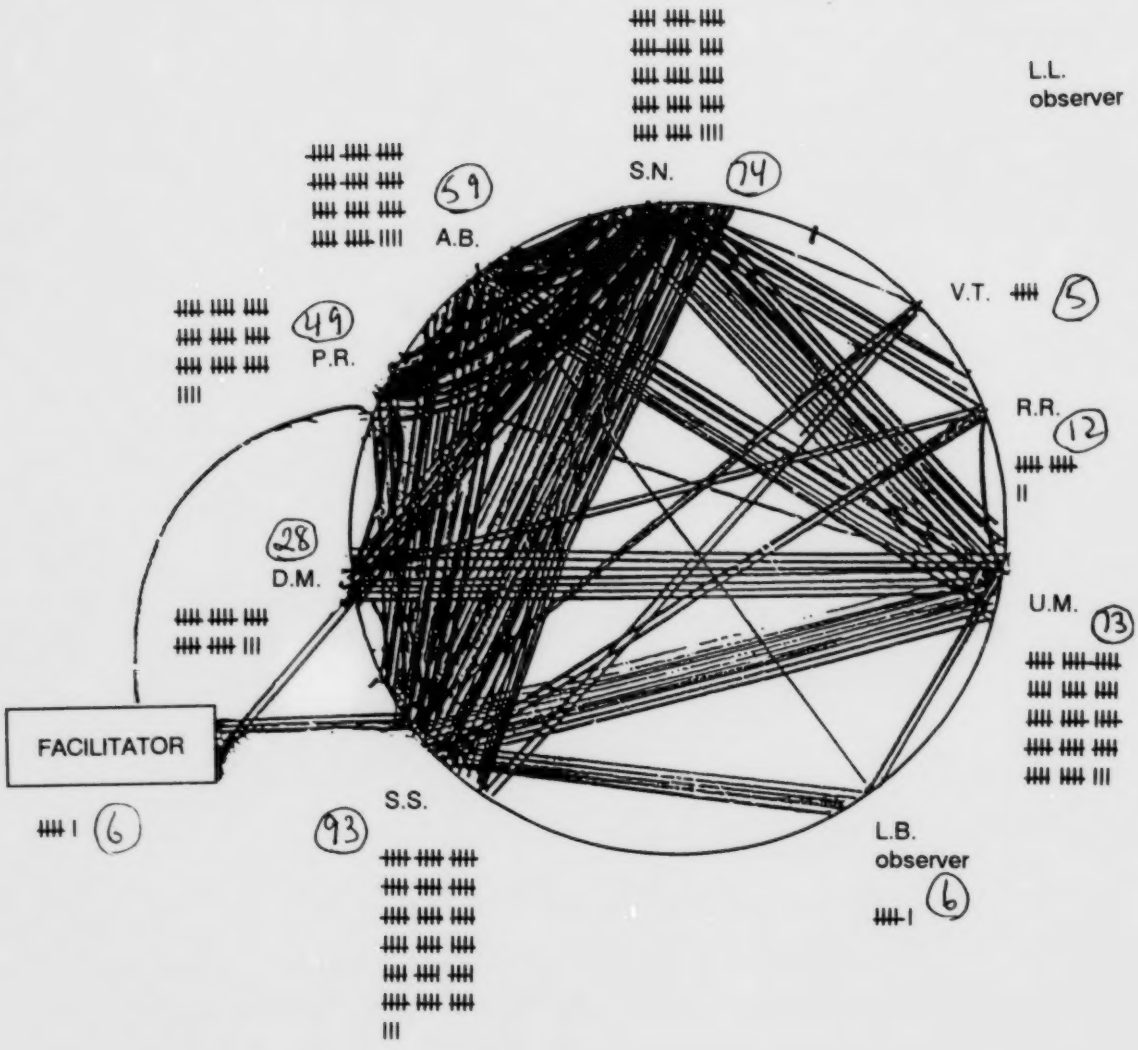


1st 20 minutes ——
2nd 20 minutes ——
3rd 20 minutes ——
4th 20 minutes ——

Group B. Group discussion in which facilitator played a prominent role



Group C. Group discussion dominated by several of its members



1st 20 minutes ——
2nd 20 minutes —
3rd 20 minutes —
4th 20 minutes —

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 6:

IMPLEMENTING SELECTED STEPS IN THE RESEARCH PROCESS

The rationale and content of the modules in this volume

Why have this module	Module	Content
To introduce training of trainers in HSR	Module 1: Orientation to the course	• Experienced researchers are not experienced trainers • Training skills are needed to train part-time researchers in non-academic settings • A "trainer" must be a manager, a teacher and a researcher
To review the purpose, scope, and uses of HSR	Module 2: Health systems research: a review	• Purpose of HSR • Similarities with other types of research • Special characteristics of HSR
To indicate what we expect in a research proposal	Module 3: Critical appraisal of research proposals	• Critique a proposal using a given set of guidelines
To provide an overview on designing a short course to train participants to do research	Module 4: Introduction to planning a course on designing and conducting HSR projects	• Outline of a course to: - Prepare research proposals; - Manage "fieldwork" (data collection); and - Analyze data, prepare and present reports. • Role of trainers • Principles of learning
To understand group process as a basis for facilitating group discussions	Module 5: The group process	• The group process • Types of behaviour in a group
To introduce the step-by-step approach adopted in the course on Designing and Conducting HSR Projects"	Module 6: Implementing selected steps in the research process	• Selection and analysis of research problems • Formulation of research objectives and selection of variables • Supervising a research project
To clarify the expected outcome of a learning experience for both the teacher and the learner	Module 7: Learning objectives	• Purpose of learning objectives • Construction of objectives

Module 6: IMPLEMENTING SELECTED STEPS IN THE RESEARCH PROCESS

OBJECTIVES

At the end of this module, participants should be able to apply the approaches described in Volume 2 of this Training Series to:

1. Select and analyze a research problem.
2. Formulate research objectives and select variables.
3. Supervise junior researchers during the fieldwork phase of their research projects.

CONTENTS

Notes for the facilitator

Session 1: Problem identification and analysis

Session 2: Formulating research objectives and selection of variables

Session 3: Supervising research projects

NOTES FOR THE FACILITATOR

1. **Sessions in this module**

During each of the three sessions in this module, participants work through a step in the research process so that they become familiar with the systematic step-by-step approach that they will have to adopt when training beginning researchers. The three sessions are:

Session 1: Problem identification and analysis
Session 2: Formulating research objectives and selection of variables
Session 3: Supervising research projects

Participants should be asked to read **Modules 3** and **4** from Volume 2 of the Training Series the night before session 1. Plan to do an introductory lecture on Problem Identification and Analysis (see the summary under session 1) before the participants begin their group work on this part of the research process, because it's likely they will need this second "refresher review" even if they've read the modules.

Participants should be asked to read **Modules 6**, **7**, and **8** from Volume 2 the night before session 2. If you think it is necessary, prepare a short summary on how to formulate objectives and select variables. Use the information from the modules in Volume 2 to prepare the lecture.

2. **Use of Volume 2 of this Training Series**

Volume 2 is the central volume in this Training Series. It is designed for use in courses on research methodology. Participants should each have their own copy of Volume 2 and use it as a reference throughout this module. As a result, they will become familiar with the content and layout of the volume and gain confidence in using it to conduct their own training courses.

3. **Sequencing of the three sessions**

In a training of trainers course, the three sessions of this module may be sequenced with some flexibility. The first two sessions are closely related and may be given early in the course, either together or separately, as they deal with the beginning of the research design process. The third session can be introduced somewhat later. It is particularly useful for participant trainers who already know what research projects they will supervise during the fieldwork phase. If this information is not available, for example, because trainers haven't given Part I of the Volume 2 course yet, the participant/trainers could work in session 3 to develop a strategy for supervising the hypothetical project they worked on in sessions 1 and 2 of this module.

The exercises that are used to analyze small group discussions can be used with each of these sessions. (See Module 5, exercises 1 and 2.) The three sessions should, therefore, be sequenced such that they can be used for this purpose.

Handout 1.1 of **Module 1** illustrates an example of how these sessions can be sequenced in relation to other modules in the course.

SESSION 1: Problem Identification and Analysis

1. **Pre-session reading**

   Modules 3 and **4** from Volume 2 of the Training Series.

2. Introduce the module and its purpose and explain that, during the first two sessions of this module, each group of participants will select one problem and start developing a research proposal on that problem using the approach that they will subsequently be training others to use.

3. The module facilitator should select the method for generating problems that will be the topics of this session. Some possible methods include:

   - Using problems that have been identified for a forthcoming workshop for beginner researchers;
   - Requesting each group to brainstorm and select a topic of common interest (i.e., use the approach described in **Module 3** of Volume 2); or
   - Selecting topics from a national list of priority problems.

4. Present a mini-lecture on Problem Identification and Analysis. (See the next page for an outline of the contents of this lecture, summarized from Modules 3 and 4 of Volume 2 of this series.)

5. Place participants in small groups and assign one facilitator per group. This facilitator should have had previous experience in using Volume 2 of the Training Series.

   The group should appoint its own leader and reporter and work through the process of problem identification, prioritization (if necessary), and problem analysis as described in **Modules 3** and **4** of Volume 2.

6. Before beginning the group discussions, inform participants that the session will be used simultaneously as an exercise in understanding group process. Explain how the selected exercise from **Module 5**, The Group Process, will be used and distribute the appropriate handout to the participants or to the facilitator or other observer who will do the recording. (Either Exercise 1 or 2 from Module 5 can be used, depending on which would be most useful to the participants.)

7. At the end of the session, allow time for obtaining feedback and discussion in the small groups on the results of the exercise on group process.

8. The group leader and reporter should summarize the problem analysis exercise on the flip chart as described in Module 4 (of Volume 2) and preserve the flip chart for use during the next session and for presentation in plenary after session 2.

PROBLEM IDENTIFICATION AND ANALYSIS (mini-lecture)[1]

Selecting a problem for research

Whether a problem situation requires research depends on three conditions:[2]

1. There should be a **perceived difference or discrepancy** between what exists and the ideal or planned situation;

2. The **reason(s)** for this difference should be **unclear** (so that it makes sense to develop a research question); and

3. There should be **more than one possible answer** to the question or solution to the problem.

For example:

Problem situation:
In District X (population 145,000) sanitary conditions are poor (5% of households have latrines) and diseases connected with poor sanitation, such as hepatitis, gastroenteritis, and worms, are common. The Ministry of Health has initiated a sanitation project that aims at increasing the number of households with latrines by 15% each year. The project provides materials, and the population should provide labour. Two years later, less than half of the target has been reached.

Discrepancy:
35% of the households **should have** latrines, but only 15% **do have** them.

Research question:
What factors can explain this difference?

Possible answers:

Service related factors, such as forgetting to adequately inform and involve the population; bottlenecks in the supply of materials; differences in training and effectiveness of sanitary staff.

Population-related factors, such as situations where community members lack an understanding of the relationship between disease and sanitation or have a greater interest in other problems.

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[1] This section is summarized from Modules 3 and 4 of Volume 2 in this HSR Training Series: Designing and Conducting Health Systems Research Projects.

[2] This paragraph has been adapted from Fisher, A., Laing, J., Stoeckel, J. 1983. Handbook for family planning operations research design. The Population Council, New York, NY, USA.

Criteria for selecting a research topic

Because health systems research is intended to provide information for decision-making to improve health care, the selection and analysis of the problem for research should involve those who are responsible for the health status of the community. This would include managers in the health services and in related agencies, health-care workers, and community leaders, as well as researchers.

Each problem that is proposed for research has to be judged according to certain guidelines or criteria. Before deciding on a research topic, each proposed topic must be compared with all other options. Criteria that can help in this process are:

1. Relevance
2. Avoidance of duplication
3. Feasibility
4. Political acceptability
5. Applicability
6. Urgency of data needed
7. Ethical acceptability

Analyzing the problem

In HSR, the researcher is often required to do research on a problem with which he or she is not very familiar. Health workers and managers or community members may be much more familiar with the problem, but even they may never have given critical attention to its various aspects.

A systematic **analysis of the problem**, completed jointly by the researchers, health workers, managers, and community representatives is a crucial step in designing the research because it:

1. enables those concerned to pool their knowledge of the problem,
2. clarifies the problem and the possible factors that may be contributing to it, and
3. facilitates decisions concerning the focus and scope of the research.

There are several possible approaches to problem analysis. The method that is described in this HSR Training Series (see Volume 2, Module 4 for a detailed description) has been found to be effective in enabling disparate members of a newly formed group to contribute their personal knowledge and opinions systematically toward a step-by-step process of problem analysis within a limited time.

Steps in analyzing the problem

Step 1: Clarify the viewpoints of managers, health-care workers, and researchers in relation to the problem

Areas of concern within the health system are often expressed in broad or vague terms by managers and health-care workers.

e.g. "Care of diabetic patient needs review"
"Outpatient services must be evaluated"
"Bypassing of peripheral facilities should be investigated"

During initial discussions with managers and health-care workers who are involved in the problem area, clarify the issues by **listing all the problems** in the area of concern as they **perceive** them.

Remember that a problem exists when there is a discrepancy between "what is" and "what should be." Therefore, the perceived problems should be worded in such a way as to illustrate this discrepancy.

For example, health-care managers and workers may determine that the general concern that "care of diabetic patients needs review" includes the following problems:

- Insufficient awareness of diabetes and of self-care measures among diabetic patients and their relatives;
- Insufficient peripheral facilities for long-term follow-up care.

Step 2: Further specify and describe the core problem

You should attempt to describe more elaborately:

- The **nature** of the problem — the discrepancy between "what is" and what you prefer the situation to be, in terms of readmissions or complications.
- The **distribution** of the problem — who is affected, when, and where?
- The **size** and **intensity** of the problem — Is it widespread? How severe is it? What are its consequences (such as disability, death, waste of resources)?

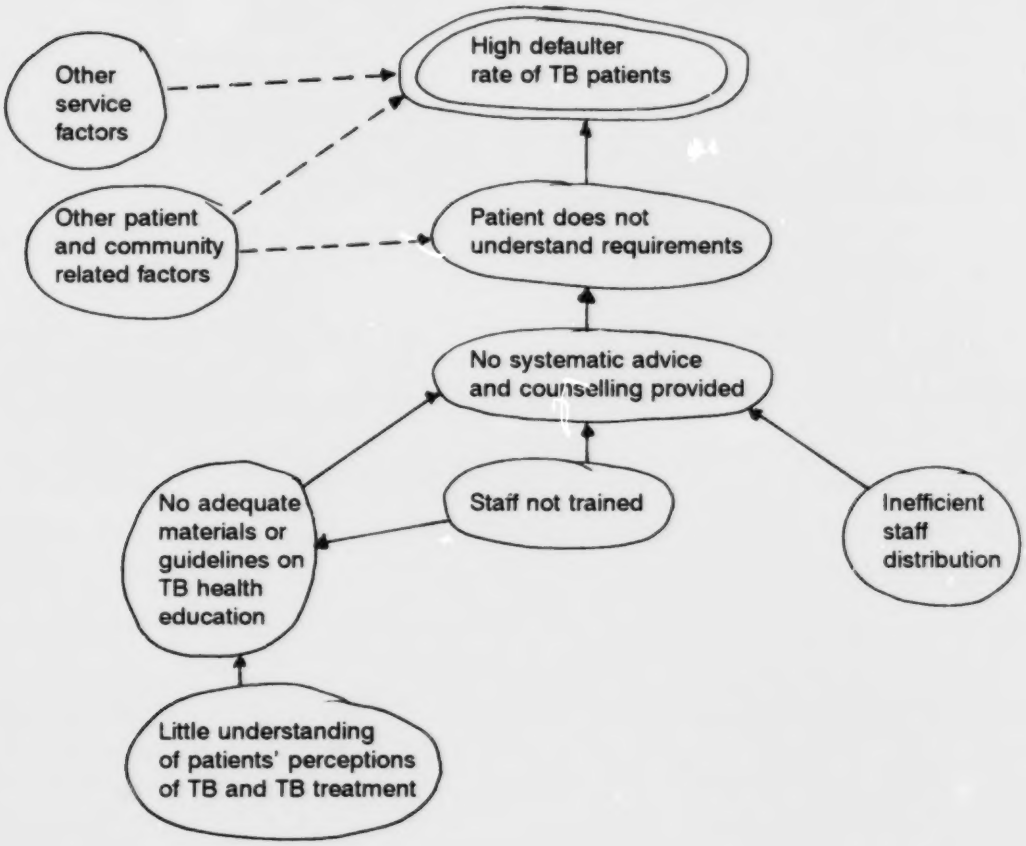
Step 3: Analyze the problem

After identifying the core problem you should:

- Identify factors that may have contributed to the problem.
- Clarify the **relationship** between the problem and contributing factors.

It is helpful to visualize these interrelationships in the form of a diagram. The basic principles of constructing such a diagram are described in Volume 2, Module 4. Just one part of the process is reviewed below:

Figure 6.1. Identifying several "generations" of predisposing factors affecting high defaulter rate among TB patients.


High defaulter rate of TB patients
Other service factors
Other patient and community related factors
Patient does not understand requirements
No systematic advice and counselling provided
No adequate materials or guidelines on TB health education
Staff not trained
Inefficient staff distribution
Little understanding of patients' perceptions of TB and TB treatment

Step 4: Attempt to organize related factors together into larger categories, and develop your final draft of the diagram

This final step in organizing the diagram will help you to avoid overlooking important factors and will make it easier to develop data-collection tools in a systematic way. For example, the revised diagram focusing on the "high defaulter rate" among tuberculosis patients may group contributing factors into three categories:

- **sociocultural factors**, which may be
  - personal factors such as age, sex, education, occupation, composition (and possible support) of the family;
  - community determined factors such as: poor or conflicting community knowledge of signs and causes of TB and of requirements for TB treatment; availability of other types of treatment in the community; preference for other types of treatment; or poor understanding and support from employer;

- **service factors**, such as
  - low availability and accessibility of services (including cost of treatment);
  - poor clinic management (unsuitable treatment regime, inadequate counselling etc.);

- **disease-related factors** such as
  - seriousness of the patient's condition at onset of treatment;
  - physical response to the treatment (complications, quick recovery).

Deciding on the focus and scope of the research

After detailed analysis of the problem, it is important to reconsider the focus and scope of the research. Several issues are particularly important to consider, including:

1. **Usefulness of the information**. Will the information that would be collected on this problem help improve health and health care? Who would use the findings related to the factors in the diagram that would be studied? How would the findings be used?

2. **Feasibility**. Is it feasible to analyze all the factors related to the problem in the 4-6 months available for research?

3. **Duplication**. Is some of the information related to factors in the diagram already available? What aspects of the problem need further research?

Review your problem diagram with these issues in mind. If your problem is complex and has many possible contributing factors, identify and demarcate the boundaries of possible smaller research topics. If there is more than one possible topic, use the selection criteria to assist you in your final decision concerning the focus and scope of your research.

SESSION 2: Formulating Research Objectives and Selection of Variables

1. **Pre-session reading**: **Modules 6, 7** and **8** from Volume 2 of the Training Series.

2. Ask the participants to continue to work in small groups with their own leader and reporter:

   - Each group should formulate research objectives and select variables for the problem analyzed in the previous session, using the problem analysis diagram it developed as a basis.

   - The matrix presented in Volume 2, **Module 8,** Variables, from the group work instructions could be put on a flipchart to aid the group members in identifying variables.

   - Use this session for another exercise on group process as described in session 1.

3. **Plenary Presentation**. Ask each group to present the results of the group work of sessions 1 and 2. Discussion during the plenary should not focus on the content of the group work but on the implementation of the approaches described in **Modules 3** and **4** in Volume 2. Questions that could be considered are:

   - What problems did the group experience in using the approach suggested in Volume 2? How could such problems be avoided?

   - What did the group's facilitator do that helped the group in the exercise?

   - What else would the group want a facilitator to do (or *not* to do)?

   Reserve some time to summarize the experiences related to the group process. However, avoid discussion in plenary of experiences or observations that could be traumatic to a group or an individual. Instead, emphasize aspects of the process that were successful and make general comments on how certain aspects of the process could be improved.

SESSION 3: Supervising Research Projects

This session is suitable for trainers who will be supervising research projects being completed by beginning researchers as projects during training courses in HSR.

1. Pre-session reading: Part III of the annex of Volume 2, Part I.

2. Before the start of this session, it would be preferable if each trainer had identified the research project he or she will be supervising and the site where the research will be conducted. (If this is not possible, the small groups can focus on the group projects they worked on in sessions 1 and 2 of this module.)

3. Place participants in groups, preferably with each group having at least one member who is familiar with the type of site(s) where the group project will be conducted.

   For example, if the projects are in health centres and rural communities, at least some members of the group should be familiar with the administrative set up and staff of these centres, and structure in the rural community. On the other hand, if the projects are in hospitals or urban clinics, some members of the group should be familiar with such facilities and their organization.

4. Ask the group to develop a detailed plan for supervising one of the research projects in the group (i.e., What needs to be done? When? How?).

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 7:

LEARNING OBJECTIVES

The rationale and content of the modules in this volume

Why have this module	Module	Content
To introduce training of trainers in HSR	Module 1: Orientation to the course	• Experienced researchers are not experienced trainers • Training skills are needed to train part-time researchers in non-academic settings • A "trainer" must be a manager, a teacher and a researcher
To review the purpose, scope, and uses of HSR	Module 2: Health systems research: a review	• Purpose of HSR • Similarities with other types of research • Special characteristics of HSR
To indicate what we expect in a research proposal	Module 3: Critical appraisal of research proposals	• Critique a proposal using a given set of guidelines
To provide an overview on designing a short course to train participants to do research	Module 4: Introduction to planning a course on designing and conducting HSR projects	• Outline of a course to: - Prepare research proposals; - Manage "fieldwork" (data collection); and - Analyze data, prepare and present reports. • Role of trainers • Principles of learning
To understand group process as a basis for facilitating group discussions	Module 5: The group process	• The group process • Types of behaviour in a group
To introduce the step-by-step approach adopted in the course on Designing and Conducting HSR Projects"	Module 6: Implementing selected steps in the research process	• Selection and analysis of research problems • Formulation of research objectives and selection of variables • Supervising a research project
To clarify the expected outcome of a learning experience for both the teacher and the learner	Module 7: Learning objectives	• Purpose of learning objectives • Construction of objectives

MODULE 7: LEARNING OBJECTIVES

OBJECTIVES

At the end of the module, participants should be able to:

1. Explain the purpose of writing learning objectives.
2. Construct learning objectives.

CONTENTS

Learning and course objectives (lecture/discussion)

Two exercises on objectives

Presentations, critiques, and discussion

MATERIALS

Handout 7.1. Exercise 1: Critique of learning objectives

Handout 7.2. Examples of action verbs

Handout 7.3. Exercise 2: Constructing learning objectives

INTRODUCTION

Trainers will be using training material in which learning objectives and content have already been formulated. To fully understand and effectively implement these objectives and to adapt these objectives to the level of their own course participants, it is necessary for the trainers to acquire competence in constructing learning objectives.

LEARNING AND COURSE OBJECTIVES (lecture/discussion)

What is meant by learning objectives?

"Objectives" describe, in the **clearest terms** possible, exactly what a student should think, act or feel at the end of a learning experience.[1] Mager describes an objective as "an INTENT communicated by a statement describing a proposed change in a learner - a statement of what the learner is to be like when he has successfully completed a learning experience."[2]

Objectives are always written according to what students must be able to do, not what the teacher intends to teach.

> **For example,** for a unit of instruction on "interviewing technique," the learning objective should be "by the end of the session the participant should be able to conduct a face-to-face interview using a structured questionnaire."
>
> The learning objective should **not** be "to teach participants how to interview."

If the objective focuses on "teaching" participants how to interview, the teacher may meet the objective without necessarily giving the participants the competence they need. On the other hand, if the objective is to enable the participants to conduct an interview, the teacher will have to focus on the participants' behaviour rather than simply on his or her own actions.

Why do you write objectives?

Learning objectives are written to:

1. Inform participants concerning:
    - What they will learn during the course or during the session; and
    - The level of performance expected of them at the end of the learning experience.

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[1] Davies I. K. 1976. Objectives in curriculum design. McGraw Hill, New York, NY, USA.

[2] Mager R.F. 1962. Preparing instructional objectives. Fearon Publishers, Palo Alto, CA, USA.

2. Inform lecturers/facilitators/resource persons about what the participants are expected to learn so that:

   - They can plan the learning experience accordingly;
   - They can assess whether participants have acquired the desired level of competence during the learning experience and, if there are deficiencies, modify and adapt the learning experience appropriately; and
   - They are aware of what is covered in other sessions so as to reinforce learning and avoid unnecessary duplication.

   It is the responsibility of the educator to create a motivating environment and to assist the participants in achieving the learning objectives.

How to write objectives

Who is to perform the desired behaviour?

Objectives are written for participants. The participants attending a course in proposal developed, for example, can be managers, researchers, doctors, nurses, or a mixed group including community representatives. Whatever the case, one must always consider the participants' prior knowledge, skills, and attitudes as a basis for writing appropriate objectives.

Components of an objective

Mager (1962) proposed that an objective should contain at least 3 components: behaviour, condition, standard.[3]

Behaviour is a **specific, observable** act (e.g., to write, to explain).

The behaviour should be **clear, specific, and unambiguous** so that it can be measured. Behaviour should be described using **action verbs**. The action verbs used to describe the behaviour should be clear, specific, and unambiguous as well.

EXERCISE 1: Critique of learning objectives

Pass out Handout 7.1 and ask the participants to complete it individually. Then ask the participants for their answers and provide feedback on whether they are correct.

[3] Mager R.F. 1962. Preparing instructional objectives. Fearon Publishers, Palo Alto, CA, USA.

Comments and summary (after the exercise)

A verb such as "understand" is not explicit enough. We must describe what the learner will be DOING, which demonstrates that he or she **understands**. **For example**, we may want him to "explain," "discuss," or "describe" - all of these verbs indicate understanding. A verb such as "to know" is not very clear either. Does **to know** mean to "calculate" or to "solve"? Since these words and many others are open to interpretation, teachers should avoid using them whenever possible.

There is a hierarchy of action verbs that can be used. These range from simple (e.g., define, identify, determine, examine, describe) to more complex (e.g., formulate, analyze, design, construct).

Pass out Handout 7.2 and review the examples of action verbs that can be used in the cognitive, affective, and psychomotor domains. Stress the importance of developing learning objectives that focus on more complex types of activity (application, analysis, synthesis, and evaluation) rather than just on knowledge and comprehension.

Two other possible components of an objective that are of lesser importance than behaviour are **condition** and **standard**.

Conditions are restrictions and limitations under which the behaviour is to occur. **For example**:

"Without the aid of reference..."
"At the end of the instruction..."
"Given a set of tables on health statistics..."
"In your own words..."

Standards define the criteria of acceptable level of performance by describing how well the student must perform. **For example**:

"At the end of a unit of instruction on variables the participant will be able to differentiate **accurately** between independent and dependent variables in a given situation."

In this case, the acceptable level of performance is "accurately." Accuracy, therefore, becomes the basis for evaluating the prescribed behaviour that can be measured. Note also the use of the explicit action word "differentiate."

Combined, these components (behavior, condition, and standard) will help make objectives more specific. In practice, however, it will not be necessary to include all three components in each objective. The important thing is to write objectives that are understandable or that communicate our intent. These components serve as guidelines and can be used as needed to describe **all** intended outcomes.

EXERCISE 2: Constructing learning objectives

Distribute Handout 7.3 and review the instructions for Exercise 2 with the participants. Then divide the participants into small groups to complete the exercise. Call the groups back together for presentation of their results in plenary and lead a discussion and critique of each presentation.

Constructing course objectives

Target Group

The target group for a particular course could be hospital or health-program managers; researchers from various institutions; doctors, nurses, and other health professionals; or a mixed group including community representatives or decision-makers. The following must be considered before constructing course objectives:

- **Entry behaviour:** Each target group presents different behaviours in terms of knowledge, skills, and attitudes (in research). For example, some participants may have had considerable exposure to reading research papers and interpreting results, but no knowledge of the research process. Other groups may have participated in research as data collectors, but have had little exposure to research papers or to the research process itself. Some may have a good background in statistics, others in epidemiology, and still others in sociology. Some participants may be researchers who know how to do a research project, but may have little knowledge of the management of research programs. Consideration must, therefore, be given to the types of participants and their knowledge, skills, and attitudes at time of "entry" when constructing course objectives.

- **Terminal behaviour:** Course objectives indicate the "terminal behaviour" expected when the participants finish the course. Course objectives can be both general and specific. For example, the "general" terminal behaviours indicated for Part I of Volume 2 of the Training Series is for each participant to prepare an HSR proposal. This objective is too "general" for operational purposes. To enable the participants to achieve this objective, the trainer must formulate more specific sub-objective(s).

Examples of general and specific course objectives

Examples of both general and specific course objectives are given in Figure 7.1.

Characteristics of course objectives

Course objectives, like learning objectives for course modules or sessions, must be understandable, achievable, measurable, and participant-oriented.

Figure 7.1. Objectives for a course on designing an HSR proposal.

General course objective:

At the end of the course, each participant should be able to prepare an HSR proposal.

Specific course objectives:

At the end of the course, each participant should be able to:

- Describe, analyze, and evaluate the identified problem.
- Review relevant literature and other available information.
- Formulate objectives.
- Develop an appropriate research methodology.
- Construct appropriate data collection instruments.
- Develop a strategy for distribution and utilization of results.
- Prepare a budget.

Handout 7.1. EXERCISE 1: Critique of learning objectives.

Review the following statements (which are intended to be learning objectives) and indicate whether they are stated in behavioral terms which can be measured.

	Yes	No
1. To name the components of a research proposal	( )	( )
2. To understand the principles of adult learning	( )	( )
3. To construct research objectives	( )	( )
4. To know the meaning of validity	( )	( )
5. To have faith in the data collection instrument	( )	( )
6. To enjoy interviewing people	( )	( )
7. To really understand HSR	( )	( )

Give reasons for the "no" responses. Propose alternative action verbs that can be measured.

Handout 7.2. Examples of action verbs that can be used in the cognitive, affective, and psychomotor domains.[4]

Domain	Examples of action verbs
COGNITIVE	
Knowledge	
• Recall of a wide range of materials, from specific facts to complete theories	define, name, list, outline, describe, identify, match, label, reproduce, select, state
• Represents the lowest level of learning outcomes	
Comprehension	
• Ability to grasp meaning, translate or interpret materials or estimate future trends	explain, discuss, translate, interpret, estimate, predict, distinguish, give examples, rewrite information
• Represents the lowest level of understanding, but the learning outcomes go beyond the knowledge level	
Application	
• Ability to use learned material in new and concrete situations (e.g., application of rules, methods, concepts, principles, laws, and theories)	apply, change, compute, solve, use, show, demonstrate, discover, manipulate, modify, relate, prepare
• Requires a higher level of understanding than "comprehension"	
Analysis	
• Ability to break material into component parts to understand its organizational structure	break down, differentiate information, illustrate, discriminate, diagram, analyze
• Includes identification of parts, analysis of relationships between parts, and recognition of principles involved	

[4] Gronlund N.E. 1970. Stating behavioural objectives for classroom instruction. McMillan Co., London, England. pp. 20-24.

Domain	Examples of action verbs
COGNITIVE (continued)	
Synthesis	
• Ability to put parts together to form a new whole (e.g., produce a theme, speech, plan of action, research proposal, abstract, or scheme for classifying information)	categorize, create, compose, combine, devise, design, generate, modify, organize, reconstruct
• Represents creative behaviours with major emphasis on formation of new patterns or structures	
• Represents a higher intellectual level than comprehension and application	
Evaluation	
• Ability to judge value of materials (e.g., a research proposal or report) for a given purpose, using appropriate criteria (determined by students)	appraise, conclude, compare, evaluate, assess, criticize, justify, summarize
• Represents highest learning outcome - behaviours contain elements of other categories within the cognitive domain	
AFFECTIVE	
• Contains behaviours which have emotional overtones and includes such behaviours as showing awareness, sensitivity to, enjoying, appreciating, accepting responsibility for, etc.	choose, follow, assist, conform, lead, initiate, share, comply, cooperate, adhere appreciate, realize, become aware of (less concrete but often used)
PSYCHOMOTOR	
• Contains behaviours that involve "motor" skills or activities involving neuromuscular coordination	assemble, build, clean, change, construct, design, locate, make, draw, weigh

Handout 7.3. EXERCISE 2: Constructing learning objectives.

Instructions:

1. Work in small groups.

2. Using the information given below regarding the topics to be covered in a session on preparing a research project budget, construct learning objectives for the session. Try to include objectives that focus not only on lower levels in the cognitive domain, but on higher levels as well (e.g., application, analysis, synthesis, or evaluation).

   Topics to be covered in a session on preparing a research project budget:

   - Why do we need a budget?
   - How should a budget be constructed? (budget categories and formats)
   - Preparation of a budget justification
   - Pitfalls in budget preparations
   - How can a budget be reduced, if necessary?
   - Obtaining funding support

3. Present your results in the plenary session.

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 8:

LESSON PLANNING

The rationale and content of the modules in this volume

Why have this module	Module	Content
To plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
To discuss how to make a lecture an effective learning experience	Module 10: The lecture method	• Purpose of lectures • Preparation of lectures • Effective delivery
To review how to make and use audiovisual aids effectively	Module 11: Use of audiovisual aids	• Types and purpose of audiovisual aids • Preparation and use of transparencies
To learn teaching skills through practice and constructive feedback	Module 12: Micro-teaching	• Explaining • Questioning and reinforcement • Composite teaching skills • Practice and critique
To practice facilitating learning during small group discussions	Module 13: Facilitating small group discussions	• Facilitating small group discussions • Practice and critique • Managing change and conflict
To determine, for any country: • Who needs training in HSR • What type(s) of training strategies are appropriate • What should be the content of training • What training materials are available How to use the available material to plan a short course	Module 14: Training in health systems research	• Process of developing HSR in a country • Training needs and strategies • Training materials that are available • Planning a short course in HSR
To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Module 8: LESSON PLANNING

OBJECTIVES

At the end of this module participants should be able to:

1. Explain what a lesson plan is and its purpose.
2. Plan a lesson.

CONTENTS

A pre-session assignment: Ask participants to read **Module 7** on Study Type from Volume 2, Part I before the session

Lesson planning (lecture/discussion)

Exercise: Preparing a lesson plan on selected aspects of Study Design

LESSON PLANNING (lecture/discussion)

What is a lesson plan?

A lesson plan is a formalized outline of a lesson that one is going to teach.[1]

Purpose of a lesson plan

- During the process of planning, it forces the teacher to conceptualize clearly what he or she is going to do and how to do it.
- It functions as a guide for the teacher during the teaching of the class.
- It serves as a useful guide for constructing tests.
- It also serves as a guide for a second presentation of the same lesson.

Guidelines for developing a lesson plan

The following key elements should be considered when developing a lesson plan:

1. **TOPIC**

   Identify the topic of the lesson to be prepared. (e.g., "How to design a questionnaire").

2. **DATE**

   Determine the date of the lesson and begin planning early. This will allow time for more comprehensive preparation. (When giving the lesson a second time the date of the first presentation may help indicate whether it will be necessary to update information within the lesson.)

3. **AUDIENCE (target group)**

   Identify the type and number of participants to be taught. This information will help the trainers to define the level of information that is required as well as to analyze the participant characteristics that may affect presentations. (See the sample lesson plan at the end of this module for an example.)

4. **LEARNING OBJECTIVES**

   State precisely what the participants are expected to have learned by the end of the lesson. Consider objectives in all domains of learning: cognitive, affective and psychomotor. (See the sample lesson plan for an example.)

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[1] Irby, D.M. 1988. Lesson planning. Department of Medical Education, University of Washington School of Medicine, Seattle, Washington, USA.

5. PREREQUISITE LEARNING

Define the information or skills needed by the participants to understand the topic that is to be taught. Also consider reading assignments or handouts they should have received, practice sessions that should have been completed, etc.

EXERCISE 1:

Ask the participants which of the following prerequisites would be necessary for a session on how to design a questionnaire (put the list on transparency):

- Data collection techniques (overview)
- Observation techniques
- Interviewing techniques
- Reasons for using questionnaires
- Types of questions that can be used in questionnaires
- Precoding questionnaires

6. LESSON CONTENT

When preparing the lesson, a number of issues should be considered, including:

- Length of presentation/time allotted;
- Teaching method best suited to the objectives (e.g., lecture, lecture/discussion, demonstration, small group discussion);
- Learning activities to be used (e.g., individual or group exercises, role playing); and
- Questions to be asked.

When preparing the lesson consider the following guidelines:

Introduction

- Develop an interesting "introduction" to the topic so as to stimulate interest and to establish the mood and climate of the lesson.
- Introduce the content by establishing a common knowledge base among the participants.
- State objectives clearly.

Main points of the lesson

- **Write down key information** to be presented. Limit the number of issues and concepts to be covered in one lesson.
- **Sequence the information** in a way to facilitate learning (e.g., from simple to complex, abstract to concrete).
- **Indicate the teaching method** most appropriate to achieve the objectives (e.g., lecture, discussion, individual assignment).
- **Identify teaching aids** most appropriate for enhancing learning (e.g., use of the blackboard, slides or models).
- **Determine learning activities** - consider direct participant involvement in the activities.
- **Determine how the lesson will be assessed.**

Conclusion

- Summarize the key points covered.
- Indicate what preparation is needed for the next class.
- Distribute evaluation forms (if desired) and ask students to complete them before they leave.

7. MATERIALS

Consider what materials are required for the lesson:

- Audio-visual aids/equipment,
- Handouts,
- References.

EXERCISE 2:

Distribute Handout 8.1. Ask participants to work individually to develop a lesson plan, following the instructions in the handout.

Handout 8.1. EXERCISE 2: Preparation of a Lesson Plan

1. Work individually.

2. Using the guidelines presented in this session, plan a lesson on a selected aspect of Study Type. (Refer to the sample lesson plan on the following two pages for an example of a lesson plan on another topic.)

3. The facilitator will assess your work during the exercise and give you guidance, if needed.

SAMPLE LESSON PLAN

Topic: How to design a questionnaire

Date: 2 December 1991

Time allotted: 2 hours

Target group: 10 participants in a mixed group consisting of physicians, nurse tutors, and research assistants.

Objectives: At the end of the session the participants will be able to:

1. Explain at least six guiding principles for designing a questionnaire.
2. Apply the above principles in designing a questionnaire.
3. Design a questionnaire.

Prerequisite learning

Participant should have been introduced to:

- Data collection techniques (overview);
- Reasons for using questionnaires; and
- Types of questions used in questionnaires.

Lesson content

Outline	Teaching method	Audiovisual aids	Learning activities	Assessment
INTRODUCTION (10 minutes)				
1. Review purpose for using a questionnaire and types of questionnaires	Question-answer session			Quality of participation
2. State objectives of today's lesson	Lecture	OHP		
MAIN POINTS (1 hr 40 minutes)				
1. Guiding principles for designing a questionnaire (20 minutes)	Lecture/discussion	OHP		Quality of participation
• Length of each question • Technique standardization	Show samples of questions/use of examples		Individual exercise	Results from individual exercise
• Usefulness of each question • Sequencing • "Consumer-friendly" approach • Clarity/specificity • Simplicity			Question-answer session and brain-storming	
2. Steps in designing a questionnaire (1 hr 20 minutes)	Lecture/discussion	Flip chart	Small group process/exercise	
• Identify key words from objectives • Develop questions • Select variables • Formulate "control" questions • Sequence the questions • Pretest questionnaire • Formulate/reformulate final version	Supervised practice session (constructing questions)	Handout on objectives of exercise	Presentations and critique	Critique of participants' presentations
END OF LESSON (10 minutes)				
1. Review each section 2. Identify sources for further reading				

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 9:

INTRODUCTION TO PRINCIPLES OF LEARNING AND TEACHING METHODS

The rationale and content of the modules in this volume

Why have this module	Module	Content
To plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
To discuss how to make a lecture an effective learning experience	Module 10: The lecture method	• Purpose of lectures • Preparation of lectures • Effective delivery
To review how to make and use audiovisual aids effectively	Module 11: Use of audiovisual aids	• Types and purpose of audiovisual aids • Preparation and use of transparencies
To learn teaching skills through practice and constructive feedback	Module 12: Micro-teaching	• Explaining • Questioning and reinforcement • Composite teaching skills • Practice and critique
To practice facilitating learning during small group discussions	Module 13: Facilitating small group discussions	• Facilitating small group discussions • Practice and critique • Managing change and conflict
To determine, for any country: • Who needs training in HSR • What type(s) of training strategies are appropriate • What should be the content of training • What training materials are available How to use the available material to plan a short course	Module 14: Training in health systems research	• Process of developing HSR in a country • Training needs and strategies • Training materials that are available • Planning a short course in HSR
To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Module 9: INTRODUCTION TO PRINCIPLES OF LEARNING AND TEACHING METHODS

OBJECTIVES

At the end of this module, participants should be able to:

1. Identify types of teaching methods that can be used in HSR training.
2. Explain the purpose for using each of the methods.

CONTENTS

Principles of learning (lecture/discussion)

Introduction to teaching methods (lecture/discussion)

MATERIALS

Handout 9.1. Overview of teaching methods

PRINCIPLES OF LEARNING (lecture/discussion)

How does learning occur?[1] [2]

The function of a teacher is to help the learner to learn. Therefore, it is important for trainers to understand the basic principles involved in learning.

The learner must want to learn

It is necessary to create interest and curiosity and a recognition of the importance and purpose of the topic. Because participants in most HSR courses will not be working toward an additional educational qualification nor getting any tangible reward at the end of the course, it is particularly important that components of the course itself stimulate the desire to learn.

Learning is a highly individual process

Each individual needs to select the **key** information that he or she needs from what is being taught. The content of what is being taught should be organized in such a way that key information is easily recognized (e.g., through the sequencing, the emphasis given, the length of time allocated, etc.).

The participant then needs to **relate** it to his or her own knowledge, perceptions, and understanding. Each one needs to discover the personal meaning and relevance of the ideas. To provide an example, invite participants to consider:

> To what experiences of your own did you relate the concept of involving managers in the process of developing research recommendations (when this topic was addressed in Module 4)?

Facilitators must be alert and sensitive to the differing needs of each participant and be prepared to respond to signals that an individual may be having difficulty with a particular piece of new information. Such signals could be questions, facial expressions, signs of discomfort, etc. Inviting such a participant to share his or her concern or worry creates the opportunity to provide assistance and can stimulate new ideas among other participants.

Learning is an evolutionary process

Many of the concepts and skills in HSR courses are highly complex. Therefore, it is not realistic to expect participants to acquire mastery immediately.

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[1] Cox, K., and Euran, C. eds. 1988. Introduction to teaching approaches. *In* The medical teacher. Churchill Livingstone, New York, NY, USA. pp. 23-24.

[2] Mica, P.R., and Ross, H.S. 1975. Health education and behavioural science. Third Party Associates, CA, USA.

The following principles are important:

- Participants need to be able to **integrate the content** of what they have learned (i.e., recognize the relationship between ideas, use earlier information to understand subsequent information, etc.). The HSR course modules have many opportunities for this.

  (Invite participants to recall the group work on the four steps in the research process (problem selection, problem analysis, research objectives, selection of variables) and give examples of this principle.)

- Participants need the opportunity to **practice and apply** what has been learned as soon as possible. Practice and application assist the learner in recognizing misconceptions and failure to understand and helps the learner to internalize the new information.

  (Invite participants to identify how this is achieved during the HSR courses.

  It is achieved through group discussions, individual exercises, and the research project. Therefore, it is important to recognize that these are the critical components of the module. If these critical components are omitted or abridged, the learning process will be ineffective.)

Learning is an emotional as well as an intellectual process

"Research" is widely perceived as a complex, difficult topic associated with highly intellectual individuals. Therefore, participants often enter an HSR course with anxiety and hesitation. Also, if they are not from a research institution, they are likely to be concerned that a new, difficult task is being assigned to them.

Feelings of fear, insecurity, and hostility hinder the learning process. It is the responsibility of the facilitator to allay negative emotions and foster positive emotions that will enable learning to occur. This can be done by:

- Generating a relaxed atmosphere, free from threat;

- Encouraging free and open communication (e.g., asking and answering questions, redirecting questions to other participants);

- Nurturing acceptance, self-respect, and trust. Avoid remarks that may threaten the participants' self-respect and identify opportunities to build the confidence of participants.

  (Invite participants to offer examples of how facilitators have boosted self-confidence either in this course or in their previous experience.)

- Establishing that the learner has the right to make mistakes.

  (Invite participants to recall instances where they learned from their own mistakes.)

  Facilitators should use mistakes as an opportunity to learn and not as a sign of failure.

INTRODUCTION TO TEACHING METHODS (lecture/discussion)

Recognizing the basic principles of learning, it is necessary to select relevant teaching methods and use them appropriately.

The choice of appropriate teaching methods for each lesson will depend on the lesson objectives. **For example**, if you were trying to attain the following teaching objectives, which teaching methods would you choose? (On transparency, show the following objectives:)

OBJECTIVES:

At the end of the session on the interviewing technique, the participants should be able to:

1. **Explain** the reasons for using the interviewing technique.
2. **Discuss** the principles of interviewing.
3. **Conduct** a face-to-face interview using a structured questionnaire.
4. **Realize** the importance of confidentiality in an interview.

(Place a special emphasis on the action verbs.)

Possible teaching methods one could use to reach the above objectives include:

- Lecture-discussion
- Small group teaching
- Demonstration
- Role play
- Field practice

Types of teaching methods

Ask the participants to discuss various aspects of each of the teaching methods they have proposed, including:

- Its purpose
- Its main characteristics
- How it is used

Distribute **Handout 9.1** and relate the participants' responses to the framework it presents. Spend extra time discussing the teaching methods with which the participants are least familiar.

Summary

Good teachers are aware of teaching and learning as a process necessitating two-way communication and understand the conditions that participants find helpful to their learning. Basic steps that can be followed to make any teaching session successful include:

1. Determining learning objectives;
2. Deciding what experiences must be provided to achieve the objectives;
3. Deciding what resources are needed to help participants learn from the experience; and
4. Determining how to find out whether they have learned.

The fact that teaching does not equal learning should be kept in mind when choosing the methods for teaching sessions.

Handout 9.1. Overview of teaching methods[3]

Method/teaching format	Purpose
1. LECTURE	
• A single teacher teaching a group of students using mainly verbal exposition.	• To provide information • To promote understanding • To stimulate interest
2. SMALL GROUP SESSIONS	
• Session with 6-12 participants. The term tutorial may be used synonymously with small group sessions. • A situation where students and teachers have to learn together to achieve a goal. • Based on extension of the principle "two heads are better than one." • Small group process is enhanced by the use of such formats as problem solving, presentation, free discussion, role play, case study, use of evidence, and games.	• Most appropriate method for the development of: - Thinking and problem-solving skills, - Communication and interpersonal skills, - Teamwork, and - Leadership skills and attributes. • It can also be a vehicle for learning facts.
3. FIELD VISIT	
• A visit specifically planned for its possible contribution to the objectives of the course/project/lesson. • An opportunity to understand health problems and conditions in the community.	• To provide an integrated experience (e.g., health, environment, economic and social conditions). • To show a complete situation quickly by means of direct observation. • To provide a better understanding of roles and responsibilities.

[3] Cox, K., and Euran, C. eds. 1988. The medical teacher. Churchill Livingstone, New York, NY, USA.

Method/teaching format	Purpose
3. FIELD VISIT (continued)	• To create awareness of HSR on the part of the community. • To provide ideas and source materials for research projects. • To promote social interaction and better interpersonal relationships.
4. CASE STUDY • Cases are used as the focus of conferences, presentations, and assignments. • A case involves a number of steps including: - Reading a case/problem situation; - Analyzing the case and discussing it in class; and - Producing evidence to support decisions.	• Helps to sharpen participants' analytical and problem-solving skills in dealing with the multiplicity of variables and influences which are part of the "real world."
5. ROLE PLAY • Participants act out short scenes that are relevant to the topic being taught (e.g., an interview about immunization between an investigator and a housewife). • Steps include: - Trainer describing the situation and then assigning roles to various participants; - Chosen participants acting out the scene while others watch; and - Review followed by discussion.	• Gives participants an appreciation of how people interact. • Helps improve communication and interpersonal skills. • Develops/improves attitudes.

Method/teaching format	Purpose
6. BRAINSTORMING	
Steps include: • Starting with independent thinking about the issue at hand; • Group brainstorming and recording all contributions on a flip chart with no questions asked; and • Using these ideas for subsequent discussion.	Advantages: • All participants are encouraged to take part and explore a topic by giving free range to their thoughts. • The slower thinkers have time to prepare their ideas before contributing to the group. • It encourages logical and critical thinking.
7. DEMONSTRATION AND PRACTICE OF SKILLS	
• A suitable sequence of technical skills exercises in a laboratory/practice setting designed to achieve competence in certain skills (e.g., interviewing). • Provides an opportunity for improving critical thinking skills through challenging exercises requiring the use of the chosen skills.	• To develop competence in performing chosen skills. • To encourage critical thinking. The exercises should: - Provide activities for learning the techniques; - Demonstrate the actual skills to participants; and - Provide opportunities for practice and feedback which will improve accuracy/ quality of component skills.

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 10:

THE LECTURE METHOD

The rationale and content of the modules in this volume

Why have this module	Module	Content
To plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
To discuss how to make a lecture an effective learning experience	Module 10: The lecture method	• Purpose of lectures • Preparation of lectures • Effective delivery
To review how to make and use audiovisual aids effectively	Module 11: Use of audiovisual aids	• Types and purpose of audiovisual aids • Preparation and use of transparencies
To learn teaching skills through practice and constructive feedback	Module 12: Microteaching	• Explaining • Questioning and reinforcement • Composite teaching skills • Practice and critique
To practice facilitating learning during small group discussions	Module 13: Facilitating small group discussions	• Facilitating small group discussions • Practice and critique • Managing change and conflict
To determine, for any country: • Who needs training in HSR • What type(s) of training strategies are appropriate • What should be the content of training • What training materials are available How to use the available material to plan a short course	Module 14: Training in health systems research	• Process of developing HSR in a country • Training needs and strategies • Training materials that are available • Planning a short course in HSR
To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Module 10: THE LECTURE METHOD

OBJECTIVES

At the end of this module, participants should be able to:

1. Explain the reason for giving a lecture.
2. Prepare a lecture.
3. Recognize the important points to remember when delivering a lecture.

CONTENTS

The lecture method (lecture/discussion)

An individual class assignment on preparing a lecture on selected aspects of Study Design.

MATERIAL

Handout 10.1. Exercise 1: Preparation and presentation of a short lecture

THE LECTURE METHOD (lecture/discussion)

Introduction

Of all the available methods of instruction, the lecture method remains the one most preferred by both teachers and students in higher education. Although studies have shown that there are other valid learning techniques, teachers continue to present much of their material by lecturing. There must be compelling reasons for this. Experienced teachers find lecturing efficient and infinitely flexible, a means by which theory-based material can be presented to large groups of students.[1]

What is a lecture?

Essentially a lecture involves a single teacher teaching a group of students (20 or more), mainly or exclusively by verbal exposition. In its extreme form, communication is one-way, but more and more teachers are incorporating brief discussions, question-answer sessions, audiovisual aids, and other teaching methods into their lectures to make them more lively.[2]

Reasons for giving a lecture

1. To provide information

New information, in particular factual information, can be given quite effectively through a lecture. For example, a lecture on

- The purpose for using a questionnaire, and
- The types of questions used in the questionnaire

would provide valid information to assist participants in designing a questionnaire.

2. To promote understanding

A good lecture, well prepared and effectively delivered, provides opportunities for the use of examples and illustrations to assist with explanation, the use of questions to obtain immediate feedback, and the use of audiovisual aids to enhance learning. The end result is a further understanding of the information being imparted through the lecture.

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[1] Stafferfield, J. 1978. The lecture method. *In* Milton, O. (ed.), On college teaching. Jossey, Bass, San Francisco, CA, USA.

[2] Gregory, I.D. 1975. A new look at the lecture method. British Journal of Educational Technology, 6(1): 56.

3. To stimulate interest and to motivate

A good lecture is supposed to stimulate thinking as well as to encourage a critical attitude. A good lecturer seeks to respond to the audience, basing his or her behaviour on the verbal and nonverbal feedback his or her students provide. This responsiveness, together with the use of various techniques to promote understanding, will stimulate participant interest in learning the subject.[3]

Steps in preparing a lecture

There are several approaches to preparing a lecture, but the key elements in all approaches are more or less the same.

Before actually planning the lecture, it is advisable to consider the following issues:

- The **aim** for teaching this particular topic (e.g., the aim for teaching participants how to design a questionnaire is to ensure proficiency in the skills needed to design a questionnaire which provides information needed to meet the objectives of the research project); and
- Whether the **lecture is the best method** for achieving the lesson objectives, **or** a combination of methods (e.g., discussion, role play etc.), including a lecture.

The following steps for preparing a lecture can serve as guidelines.[4,5]

STEP 1: Work out the content

In light of the prepared lesson plan (which should already have learning objectives, a content outline and methods for teaching the topic), **work out the content.**

1. Determine/review the key points and provide just enough detail to help give each key point due emphasis and bring it to life. Begin to link various key points together. Beware of preparing a lecture that is so rich in detail that it confuses or overwhelms the participants. Ruthless selection and editing are essential. A tentative time limit in minutes for each key point can be written in the margin, keeping in mind not everything can be covered.

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[3] Hatton, N. 1988. How to plan and deliver a lecture. *In* Cox, K., Euran, C. (ed.), The medical teacher. Churchill Livingstone. New York, NY, USA. p. 29.

[4] Gregory, I.D. 1975. A new look at the lecture method. British Journal of the Educational Technology, 6(1): 58-61.

[5] Strader, M.K. 1987. Guidelines for a first lecture. Nurse Educator, 12(1).

For example:

Key point: Types of questions used in the questionnaire - 2 types of questions

OPEN RESPONSE or OPEN-ENDED	FIXED RESPONSE or CLOSED
• Allows free responses.	• Responses from which respondents must choose.
• Answers not provided, categorized, or precoded	• Possible answers have been categorized and consist of several alternatives.
• Useful to test knowledge or opinions	• Useful when categories are clear and fixed.
For example: What do you think are the reasons for a high drop-out rate of Village Health Committee members? _____ _____	For example: Are you a member of the Village Health Committee? Yes ___ No ___

2. Identify **major concepts** for each key point. All or most of the words needed to make a full explanation of those key concepts should be written out.[6]

For example:

Key point: Definition of the term "OBSERVATION," which is "a technique that involves **systematically selecting**, **watching**, and **recording behaviour** and **characteristics** of living beings, objects, or phenomena ..."

The major concepts that require full explanations and must be written out include "systematically, selecting, watching, recording, behaviour, and characteristics".

STEP 2: Sequence the material

There are different views about whether learning is proportional to the level of organization of content in lectures. In general, however, experiments have shown that superior retention and application of

[6] Strader, M.K. 1987. Guidelines for a first lecture. Nurse Educator, 12(1): 36.

knowledge occur in learning situations that are well organized.[7] There are several approaches to sequencing the material. For example:

- If there is a topic outline in the syllabus, one may follow the outline closely. It may result in reinforcing a sense of continuity and provide a means for organizing student reading.
- Some teachers follow the lesson objectives closely. The difficulty with this approach is that there may be duplication when one set of materials could have served several objectives if the approach had been more flexible.
- Other approaches would be to arrange materials from simple to complex, known to unknown, abstract to concrete, broad to specific, etc. Which is best depends on the subject matter and the goals of the lecture.

Whatever the approach, it is advisable that the following simple rules be followed:

1. Sequence the material in such a way that will help participants understand the content and remember the key points.
2. Periodically indicate that one part of the topic has been completed and another part is being introduced.
3. Cite illustrative examples and draw analogies; relate the material to participants' personal experiences and to their previous learning in the same or another field.
4. Link content to recent discoveries, making its recency explicit or refer to relevant literature; use comparisons or, if possible, present contrasting or controversial viewpoints.
5. Interject appropriate or relevant humour in sessions focusing on serious content to give participants a chance to relax.
6. Introduce questions at different places within the lecture or pose problems. This type of questioning can be used to check or further develop participants' understanding.

STEP 3: Work out the introduction

A good introduction will prepare participants for the upcoming activity as well as provide them with the right initial set. The aim is to make them want to listen and to direct their attention to what is to be learned.

There are at least two ways of introducing a topic:

[7] Katona, G. 1987. Organizing and memorizing. Columbia University Press, New York, NY, USA.

1. Focus participants' attention on what is to be learned and why it is important. This can be done by:

   - Stating the lesson objectives; or
   - Linking previous experience (i.e., by reviewing previous materials) to the present learning experience.

   For example:

   Before starting a lecture on "How to design a questionnaire", the teacher can begin by presenting the objectives stated in the lesson plan or by reviewing "the reasons for using questionnaires" and "the types of questions used in the questionnaire" and why this information is necessary for designing the questionnaire, and then begin the presentation.

   Starting a lecture by stating the objectives or linking the subject to what has come before helps participants feel secure.

2. Do something unusual that has relevance to the topic for the purpose of stimulating interest and involvement (i.e., tell a relevant joke or story).

   For example:

   Ask the participants to respond to a questionnaire that has some design problems (e.g., leading questions, questions with double negatives, ambiguous questions), then ask them to discuss what problems they had in answering the questions. Link the key issues raised to your presentation on how to design a questionnaire.

STEP 4: Prepare a conclusion

A lecture can be concluded in several ways:

1. The teacher can provide a final summary of the main points of the lecture.

2. A short summary may be linked with new information that is to be taught in the next lesson.

3. A number of questions can be posed or a quiz given so as to provide a sense of achievement to both the participants and the teacher.

STEP 5: Select audiovisual aids

Because the lecture is a passive teaching method, technological aids should be used whenever they enhance learning. For example, use the blackboard (white board) or overhead projector to emphasize key points or present diagrams, pictures or other relevant material.

Important points to remember when delivering a lecture[8]

1. Establish good rapport between the teacher/facilitator and participants by choosing an appropriate introduction for your topic.

2. Always be on the lookout during the lecture for opportunities to explain.

3. Be sensitive to participants' need for further clarifications, for reinforcement, or even for a pause or break.

4. Use precise language, appropriate to the target group. Always bear in mind the educational background of the participants.

5. Provide a conducive physical environment - check lighting, ventilation, and seating arrangements.

6. Make sure your presentation is audible and vary the tone of your voice for emphasis.

7. Try as much as possible to convey warmth, enthusiasm, conviction, and humour.

8. Make eye-contact with the participants at all times.

9. "Pacing" is important. Vary the speed of delivery depending on the difficulty of the content, the importance of the content, the note-taking expected, and the attentiveness of the participants.

10. Use audiovisual aids appropriately and properly. For example, the blackboard should always be free from irrelevant material.

11. Always try to keep within the time limit.

EXERCISE: Preparation and presentation of a short lecture

Distribute Handout 10.1. Ask the participants to take 30-45 minutes to prepare a short lecture on Study Design, focusing on some of the content they identified during their lesson planning assignment in Exercise 2 of **Module 8**. Inform participants that they will each give a 3-5 minute lecture during the microteaching session on explaining. While the participants are working on the exercise in Handout 10.1, check their progress and give any guidance necessary.

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[8] Gregory, I.D. 1975. A new look at the lecture method. British Journal of Educational Technology, 6(1): 60-61.

Handout 10.1. EXERCISE 1: Preparation and presentation of a short lecture.

1. Work individually.

2. Prepare a lecture based on the lesson plan you have prepared on an aspect of Study Design. (If you need any advice, please feel free to ask a facilitator for assistance.)

3. You will give a 3-5 minute presentation of one part of the prepared lecture material during the microteaching session on explaining.

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 11:

USE OF AUDIOVISUAL AIDS

The rationale and content of the modules in this volume

Why have this module	Module	Content
To plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
To discuss how to make a lecture an effective learning experience	Module 10: The lecture method	• Purpose of lectures • Preparation of lectures • Effective delivery
To review how to make and use audiovisual aids effectively	Module 11: Use of audiovisual aids	• Types and purpose of audiovisual aids • Preparation and use of transparencies
To learn teaching skills through practice and constructive feedback	Module 12: Microteaching	• Explaining • Questioning and reinforcement • Composite teaching skills • Practice and critique
To practice facilitating learning during small group discussions	Module 13: Facilitating small group discussions	• Facilitating small group discussions • Practice and critique • Managing change and conflict
To determine, for any country: • Who needs training in HSR • What type(s) of training strategies are appropriate • What should be the content of training • What training materials are available How to use the available material to plan a short course	Module 14: Training in health systems research	• Process of developing HSR in a country • Training needs and strategies • Training materials that are available • Planning a short course in HSR
To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Module 11: USE OF AUDIOVISUAL AIDS

OBJECTIVES

At the end of this module, participants should be able to:

1. List audiovisual aids that are helpful in teaching research and their purposes.
2. Discuss why and how to use overhead transparencies.
3. Prepare overhead transparencies.
4. Demonstrate effective presentation of overhead transparencies.

CONTENTS

Audiovisual aids (lecture/discussion)

Overhead transparencies (lecture/discussion)

Demonstration of how to prepared transparencies and use the overhead projector

Individual assignment on preparation of transparencies

Use of the prepared transparencies (during one of the teaching practice sessions)

Discussion and critique

MATERIAL

Handout 11.1. Exercise

AUDIOVISUAL AIDS (lecture/discussion)

Introduction

We can make our lectures, demonstrations, and other teaching activities more effective by using a wider variety of teaching aids for audiovisual support. They need not be elaborate. They may include, for example, chalkboard, flip charts, models, drawings, photographs, handouts, and worksheets, as well as homemade and impromptu teaching aids. Despite the many recent technological advances in audiovisual equipment, the best teaching aids are often the simplest. Indeed some of the most effective aids are common objects (e.g., hand-drawn maps to present a geographical area or a flow-chart to guide a set of activities). The most appropriate teaching aids are ones that can best convey the "messages" to the learners. Factors to consider are the importance of sound, motion, and colour, and the abilities of the persons using the aids.

Audiovisual aids should help the audience follow the teaching session and recall important aspects of the message. This means that they will likely NOT be a duplicate of figures or tables presented in the actual paper. For example, if the trainer is reviewing ten regression coefficients, the visual aid should highlight only those that are significant or that he or she wants to talk about specifically.

Types of audiovisual aids and their purposes

The following common teaching aids may be especially useful in the teaching/facilitating of research projects:

- Blackboard/whiteboard
- Flipchart
- Handouts
- Overhead transparencies
- 35mm slides
- Recorded materials (e.g., tapes, videotapes)
- Display materials (e.g.. maps, posters, charts, diagrams, and bulletin boards)

Teaching aids should be used properly and for appropriate reasons.[1,2,3]

The table on the following pages summarizes major types of audiovisual aids and their purpose in research courses. (Participants may be asked to contribute ideas concerning how each of the teaching aids can be used. It is helpful, if possible, to have some examples available to share with the class.)

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[1] Duane, N.F. 1979. An audio-visual overview. Nurse Educator, July/Aug: 7-9.

[2] Strader, M.K. 1987. Guidelines for a first lecture. Nurse Educator, Jan/Feb: 36.

[3] Rewfrow, D., and Impara, J.C. 1989. Making academic presentations effectively. Education Researcher, March: 20.

Table 11.1. Audiovisual aids.

TYPE	PURPOSE
Blackboard/whiteboard	
• A square or rectangle board with hard, formica-like surfaces designed for use with coloured and easily erasable felt-tip markers.	• For jotting down spontaneous thoughts. • For working out formulae. • For listing topics. • For sketching diagrams.
Flip chart	
• A large pad of paper clipped to an easel. • Used with nonerasable coloured pens.	• For more permanent lists and illustrations than those put on the blackboard. • For preparing topics of discussion, detailed illustrations, and graphs beforehand. • A great memory jogger. Makes it much easier to steer the class back to the topic after an interruption (if it's listed on the flip chart).
Handouts	
• Material specially prepared or copied from sources that are not easily accessible to participants. • Handouts are **not** substitutes for lectures/discussions, etc. They should be used as supplements to the material being taught.	• Can be distributed prior to the class as additional reading material. • Key points within the handouts should be brought to participants' attention and discussed during class.
Overhead transparencies	
• The most popular form of audiovisual aid. • The use of transparencies requires the support of an overhead projector and a projector screen.	• Can be used in different ways to convey information, teach skills, or affect attitudes. • Especially useful for instructing large groups.

Table 11.1. Audiovisual aids (continued).

TYPE	PURPOSE
35mm slides	
• The use of slides requires the support of a projector magazine or carousel. • They are easier to use than transparencies if slides are placed ahead of time in a carousel or other holder.	• Like overhead transparencies, a slide series may be used to convey information, teach skills, or affect attitudes through individual study or group viewing.
Recorded materials	
• Tapes, videotapes, films, etc. • May be prepared for groups or individual listening.	• Can serve to document or summarize a talk. • Can be used to record interviews, case studies, or role playing situations. • Can be used to record descriptions or instructions for procedures for the listener to review, practice, or respond to verbally.
Display materials	
• May include maps, posters, charts, diagrams, etc., and real or simulated objects.	• Can serve as useful illustrations to aid in the explanation of concepts and principles. • Certain display materials (e.g., charts, tables) can be distributed to participants individually.

Summary

The teaching aids presented above are useful in teaching research. Notwithstanding the value of such aids, it is well to remember that audiovisual aids are, after all, just aids. They should be used to support or clarify concepts that cannot be expressed in words alone, but are no substitute for good teaching and sound organization. Even the best aids cannot compensate for an ill-prepared lesson.

OVERHEAD TRANSPARENCIES (lecture/discussion)[4]

What is an overhead transparency?

An overhead transparency most often consists of a sheet of transparent material, such as acetate, with written material or graphics on it, which is projected on a screen by an overhead projector.

The overhead projector is one of the simplest audiovisual aids to use. For operation it only requires mastery of the on/off switch and focusing knob.

What can overhead transparencies be used for?

Overhead transparencies can be used to achieve a variety of instructional purposes.

- Projecting transparencies in a semi-darkened room draws all eyes to the screen.
- Brilliant colour and varied shapes attract the learner's attention.
- Display of key concepts helps involve the learners in the subject and helps to emphasize important points.
- Overhead transparencies can be used to present facts, raise questions, illustrate concepts, consolidate learner input, and show physical and psychological relationships.
- They can serve as an introduction to other methods of instruction or as a summary or a visual reminder of important points.
- The use of overhead transparencies can be enhanced by effective preparation and presentation.

How to prepare an overhead transparency

To develop an effective overhead transparency requires:

- Knowledge of the topic;
- Skill in design;
- Visual thinking;
- Communication;
- Production technique; and
- Graphic art.

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[4] Bauman, K., and Kunka, A.K. 1979. Overhead transparencies: the overhead medium. Nurse Educator, July/Aug: 21-25.

Transparencies can be made using two processes:

- Direct process - these are prepared by simply writing or drawing on clear acetate, using felt-tipped pens or waxed pencils.
- Heat process - these are prepared by taking original material (typed, written, or drawn) or printed material and transferring it to the film by use of a thermo-fax copy machine.

When preparing the transparency, a few simple rules may be used as guidelines:

1. Limit each transparency to one main idea or concept.
2. Use a small number of words (maximum: 7 words per line; 7 lines per page).
3. Remember that lower case letters are easier to read than uppercase letters.
4. Use larger size letters for headlines than for the rest of the material. (At minimum, letters should be at least 1/4" high.)
5. Use underlining, shading, or boxes to highlight key concepts.
6. Be consistent in typeface and layout throughout the presentation.
7. Centre the materials, leaving more white space on the top and bottom than on the sides.
8. Place more space around a series of items in a figure or table than between the items in the group.
9. Use colours.
10. Use graphics and text in an imaginative way. For example, prepare overlays in different colours and use them serially to illustrate ideas by building one upon another. Simplify complex drawings.

How to present overhead transparencies

The overhead projector is one of the simplest audiovisual aids to use. It is especially useful for instructing large groups and can be used at all educational levels. Follow the simple steps presented below:

1. Place the projector near the front of the room and stand or sit beside it, facing the group.
2. Place the projection screen against the front wall. (Sometimes the wall itself can be used as the projection screen.)
3. Adjust the room light to a moderate level. (Most often, lights need not be switched off.)

4. Place the transparency face up on the large stage of the projector. Press the switch-on button and control the focus knob to adjust projection.

5. Use a pointer where necessary to indicate specific ideas while speaking and, if appropriate, reveal various sections of the transparency progressively, point by point.

6. Read from and point to the transparency itself rather than to the screen.

7. When the transparency is no longer needed, turn off the projector.

Summary

When using audiovisual aids, consider the following suggestions:

- Prepare the audiovisual aids (transparencies, handouts, models, charts, etc.) in advance.
- Minimize details.
- Display aids only when talking about them.
- Explain the audiovisual aids to the audience.
- Talk to the audience, not to the audiovisual aids.
- Practice using your audiovisual aids in advance.
- Be sure any printing is large and readable.

EXERCISE

Pass out Handout 11.1. Ask the participants to work individually to prepare one or two transparencies that can be used with the lecture they each prepared earlier in the course. As mentioned in the handout, they will use the transparency when they present part or all of their lecture during one of the microteaching or composite teaching skills practice sessions. Remain available during the individual work period to offer assistance to anyone needing it.

Handout 11.1. EXERCISE.

1. Work individually.

2. Prepare one or two transparencies that can be used for the lecture you prepared earlier.

3. Present your transparencies during one of the microteaching or composite teaching skills practice sessions.

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Module 12:

MICROTEACHING

A: INTRODUCTION

B: EXPLAINING

C: QUESTIONING AND REINFORCEMENT

D: COMPOSITE TEACHING SKILLS

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 12A:

MICROTEACHING: INTRODUCTION

The rationale and content of the modules in this volume

Why have this module	Module	Content
To plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
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To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Module 12A: MICROTEACHING: INTRODUCTION

OBJECTIVES

At the end of this module, participants should be able to:

1. Explain what microteaching is and why it is important in the training of trainers for HSR.

CONTENTS

Guidelines for facilitators on microteaching techniques

Introduction to microteaching (lecture/discussion)

GUIDELINES FOR FACILITATORS

Developing the microteaching schedule

The microteaching module (Module 12) consists of four submodules:

- Module 12A: an introduction to microteaching
- Module 12B: a lecture/discussion on explaining, followed by a microteaching practice session using this skill
- Module 12C: a lecture/discussion on questioning and reinforcement, followed by a microteaching practice session using this skill
- Module 12D: a lecture/discussion on composite teaching skills, followed by a practice session using these skills.

Unless participants can be given time to prepare for the practice sessions during class, each session should each be scheduled the day after the lecture/discussion on the skill involved.

Every participant should have the opportunity to practise both explaining and questioning and reinforcement, and as many participants as possible should have the opportunity to practice composite teaching skills.

If there isn't time to cover all the sessions proposed in Modules 12A through 12D, Module 12D on composite teaching skills can be omitted. If there is still a need to eliminate some of the material, Module 12A on explaining can be omitted, as this is the skill many of the participants may know best. However, if possible, it is advisable to include the session on explaining as it allows timid participants to practice skills they feel somewhat comfortable with, before going on to more challenging skills such as questioning or facilitating small groups.

General guidelines for the facilitators on how to plan and conduct microteaching sessions are given below. Then a general introduction to microteaching that could be given to participants is presented.

Guidelines for the preparation of microteaching sessions

Before the session

1. Organize the microteaching sessions on explaining and questioning. (See Annex 12A.1.)

   You may choose to use either alternative 1, which involves:

   - Teaching, critiquing;
   - Replanning, reteaching; and
   - Re-critiquing.

or alternative 2, which simply involves:

- Teaching and critiquing.

In alternative 1, participant/teacher A teaches and is critiqued. Then, while A replans his or her presentation, B teaches and is critiqued. Then A does reteaching and is critiqued while B replans. Then B reteaches and is critiqued. Then C teaches, and so on.

If time and circumstances do not permit the use of alternative 1, use alternative 2, which involves just teaching and critique of one participant/teacher at a time. This alternative does not involve the replanning and reteaching of each lesson, which can be a useful learning experience in itself.

The session on composite teaching skills is organized much like alternative 2. (See Annex 12A.1) Each participant/teacher teaches and is critiqued, before going on to the next one.

2. Take time to properly organize the physical environment:

If video equipment is available:

- Prepare a "studio" (sound-proof environment);
- Check the TV, video, and camera to be sure all equipment is working properly; and
- Arrange a "classroom," including, for example:
  - A participant/teacher's desk or podium and 5-7 students' chairs; and
  - An overhead projector and slide projector or whiteboard.
- Arrange an "observation" room with
  - Sufficient chairs at the back of the classroom for facilitators and the rest of the participants;
- Provide an area for replanning; and
- Have a timer ready.

If video equipment is not available, a tape recorder may be used. In such instances:

- Prepare the tape recorder and at least two 60-minute tapes (sufficient for a 2-hour session);
- Practise operating the tape recorder; and
- Arrange the studio, classroom, and observation room as you would when using video equipment.

The sessions can be conducted if necessary without the use of either video equipment or a tape recorder.

3. If video equipment is used, brief the video technicians regarding:

    - What to focus on during microteaching sessions, (e.g., to focus on the participant/teacher's activities, his or her use of aids, and the students' activities during class participation); and

    - Play back the tape immediately after each teaching session.

4. Provide sufficient time for participants to prepare for each microteaching session (preferably overnight).

During the session

1. Just before starting the session, make sure:

    - Video equipment/tape recorder(s) are in working condition and correctly positioned; and
    - The classroom, observation space, and replanning areas are ready.

2. For each practise session, choose the teacher and 5-6 students; designate the others to be observers.

3. Put participants at ease. (This should be a fun session!)

4. Briefly explain the process (again) if necessary.

5. Use the timer and *stick* to the schedule.

6. If the skill (explaining or questioning) is well presented, replanning may not be necessary. Adjust the schedule and logistics accordingly.

7. Use the appraisal guides (handouts at the back of Modules 12B, 12C, and 12D) to assess the participant/teachers.

8. Ask observers to evaluate each participant/teacher using the same appraisal guides. The rest of the participants can receive copies as well.

9. If a videotape is not used, make sure to mention and critique the nonverbal behaviour of both the participant/teacher and students in your assessment.

After the session

1. Prepare for playback of the videotape or tape recorder.

2. Rearrange seating so that everyone (participant/teacher, students, observers, and facilitator) faces each other or the TV set.

3. The critique session is a very important part of the microteaching cycle and difficult to do. During the first session, the facilitator may start the critique session. In general, however:

    - Begin by asking for a self-evaluation by the participant/teacher. You might ask: "How do you feel?" or "Could you describe for us what you have done?"

- This may be followed by peer evaluation, then facilitator evaluation.
- The critique sessions should be a significant learning and corrective-action experience for participants.

4. Stop the recorder at any time during the critique session if you want to focus on a specific aspect of behaviour.

Tips for an effective critique session

The outcome of the microteaching skills sessions should be that participants will know how well or poorly they have done, why, and how to correct the situation. The critique sessions should be a time for participants to learn how to correct their negative behaviour and retain their positive conduct. Some suggestions for managing the sessions effectively are given below:

1. Begin by giving positive reinforcement. Even the worst performance still has positive aspects if one makes an effort to identify them. For example, you might focus on the participant/ teacher's voice, poise, or general appearance. Otherwise, focus on more important aspects of the skill being presented.

2. If certain aspects of the performance have been well done, make sure they are pointed out convincing manner. **For example:**

   "This is *really* good because..." (accompanied by a nonverbal expression of approval)

3. If certain aspects of the microteaching are definitely incorrect, they should be pointed out, but this should be done skilfully to avoid embarrassment. **For example**:

   - Point out exactly what the participant/teacher has done wrong (in the video playback) and the reaction of the students. Then ask the students, "Why did you react that way?" The answers may help the participant/teacher understand the mistake(s) made and how it affected the students.
   - Say, "As an alternative to what you have just done, I would suggest..."
   - Ask the participant/teacher or the whole group, "If you were given another chance to teach, how would you have done it differently?"

4. Make a summary of the comments already made (if possible) to give the teacher an added feeling of achievement (or of a not-so-good performance, as the case may be). **For example say**:

   "It was a good/excellent session! What was so good about this class was that..." or

   "What needs improvement is..."

5. Critique sessions offer many opportunities for interjecting humour and mild forms of laughing at other people's expense. Make use of or even create these opportunities as often as possible, while remaining sensitive to the feelings of participants who may have particularly fragile egos.

6. End the session on a light note.

MICROTEACHING - INTRODUCTION (lecture/discussion)

What is microteaching?[1]

It is a training concept which provides trainees with a practice teaching setting in which the normal complexities of the classroom are reduced and in which the trainee receives a great deal of feedback on his or her performance.

It is a scaled-down teaching encounter, where the teaching situation is deliberately simplified, based on the belief that teaching consists of a number of separate identifiable activities that can be isolated and practised.

A unique and vital aspect of microteaching is the feedback that forms part of the microteaching cycle. Appraisal guides can help the presenter, peers, and facilitator focus on specific behaviours during the practise session. Effectively done, the feedback can be used to help the participant immediately to improve his or her performance.

Specific skills that have been identified as activities that can be isolated and taught are:

1. **Set induction** - the ability to prepare a class for learning, often by means of an analogy, a demonstration, or a leading question.

2. **Explaining** - the ability to use both verbal and visual examples and illustrations at appropriate times in a discussion.

3. **Questioning and reinforcement** - the ability to ask clear, stimulating questions and to reinforce students' responses.

4. **Closure** - the ability to bring a learning activity to a close in a way that not only summarizes the activity, but also draws it together into a new conceptualization or learning framework. At the end of the instruction it is a complement to set induction. (See Table 12a.1.)

In microteaching sessions, trainees are required to give instruction to 4 or 5 students, in 5 to 7 minutes and to focus on mastering a specific skill, e.g., set induction, explaining, or questioning. The lesson segment is videotaped and subsequently observed and analyzed by the trainee and his or her peers with the assistance of a facilitator.

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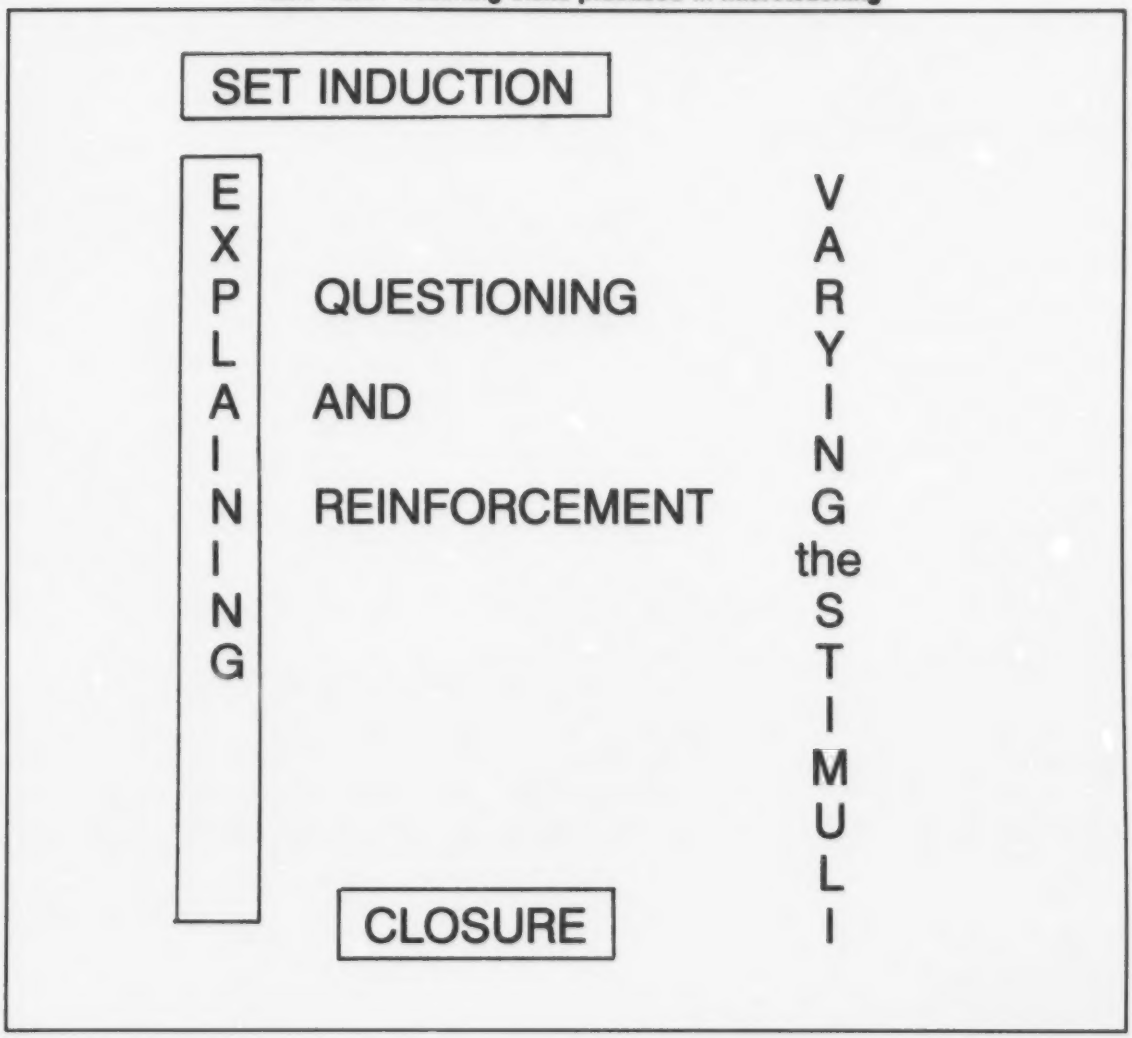
[1] Cooper, J.M. 1968. Microteaching: a description. Stanford University Press, Stanford, CA, USA.

Table 12A.1 Teaching skills practised in microteaching



Why is microteaching important in the training of trainers for HSR?

Microteaching aims at refining and increasing the range of skills available to individual teachers. Teaching HSR involves explaining concepts, principles, and skills. It also involves constructing questionnaires, performing interviews, and teaching these skills to others. Whether one is teaching in a small group or lecturing in a large theatre, the practice involved in microteaching can help one become a more effective researcher and teacher.

Annex 12A.1. Alternative schedules for microteaching sessions

1. MICROTEACHING: SESSIONS ON EXPLAINING AND QUESTIONING

Alternative 1

8:30	A teaches (5 minutes)		
8:35	A is critiqued		
8:45	A replans (in another room)	8:45	B teaches (5 minutes)
		8:50	B is critiqued
9:00	A reteaches	9:00	B replans
9:05	A is critiqued		
		9:15	B reteaches
		9:20	B is critiqued
9:30	C teaches (5 minutes)		

NOTE: In an instance where a participant has understood the skill and performed well, no replanning or reteaching is necessary. In such a situation, the next person can teach immediately after the first critique.

Alternative 2
When time does not permit the total execution of alternative 1 or when the logistics are too complicated, the following schedule can be used:

8:30	A teaches	(5 minutes)
8:35	A is critiqued	(A takes notes of what changes need to be made but no chance for reteaching is provided)
8:45	B teaches	(5 minutes)
8:50	B is critiqued	(B takes notes of what changes need to be made but no chance for reteaching is provided)

If the performance is terribly unsatisfactory (e.g., no explanation is given or questions posed), an opportunity should be given for replanning, reteaching, and critiquing.

2. SESSION ON COMPOSITE TEACHING SKILLS

14:00	X teaches (7 minutes)
14:07	X is critiqued
14:20	Y teaches
14:27	Y is critiqued

NOTE: Teaching time can be expanded, if desired, to 10 minutes. Critique time may also take longer. Reteaching is not necessary.

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 12B:

MICROTEACHING: EXPLAINING

The rationale and content of the modules in this volume

Why have this module	Module	Content
To plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
To discuss how to make a lecture an effective learning experience	Module 10: The lecture method	• Purpose of lectures • Preparation of lectures • Effective delivery
To review how to make and use audiovisual aids effectively	Module 11: Use of audiovisual aids	• Types and purpose of audiovisual aids • Preparation and use of transparencies
To learn teaching skills through practice and constructive feedback	Module 12: Microteaching	• Explaining • Questioning and reinforcement • Composite teaching skills • Practice and critique
To practice facilitating learning during small group discussions	Module 13: Facilitating small group discussions	• Facilitating small group discussions • Practice and critique • Managing change and conflict
To determine, for any country: • Who needs training in HSR • What type(s) of training strategies are appropriate • What should be the content of training • What training materials are available How to use the available material to plan a short course	Module 14: Training in health systems research	• Process of developing HSR in a country • Training needs and strategies • Training materials that are available • Planning a short course in HSR
To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Module 12B: MICROTEACHING: EXPLAINING

OBJECTIVES

At the end of this module, participants should be able to:

1. Describe what is meant by "explaining."
2. Name three types of explanation.
3. Demonstrate the skill of explaining.

CONTENTS

The microteaching technique of explaining (lecture/discussion)

Microteaching practice session - explaining

MATERIALS

Handout 12B.1. Microteaching practice session: Explaining
Handout 12B.2. Appraisal guide for the microteaching practice session: Explaining

THE MICROTEACHING TECHNIQUE OF EXPLAINING (lecture/discussion)

What is explaining?

Explaining is giving understanding to someone else.[1]

The act of explaining involves an explainer, an explainee, and something to be explained. The explainer usually intends to explain something (a problem, procedure, or concept) to an individual or group who are assumed to be striving to understand. Understanding and explaining are both active processes - the listeners must strive to connect what they know with what the explainer is saying or demonstrating, and the explainer must try to make such connections clear and meaningful.

Types of explanation

There are three main types of explanations:[2]

- Interpretive,
- Descriptive, and
- Reason-giving.

They are similar to the questions what, how, and why.

An interpretive explanation specifies the central meaning of a term or statement or clarifies an issue. For example:

- What is an interview?
- What is health systems research?
- What is meant by validity and reliability?
- What is the nominal group technique?

A descriptive explanation describes a process, structure, or procedure. For example:

- How do you conduct an interview?
- Describe the process of HSR.
- How do you ensure validity and reliability in research?
- How do you implement the nominal group technique?

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[1] Brown, G. 1978. Lecturing and explaining. **Methuen & Co. Ltd**, London, England. pp. 7-9.

[2] *Ibid.*, p. 9.

A reason-giving explanation focuses on principles or generalizations, motives, and obligations or values and may include causes. For example:

- Why do we have to conduct interviews?
- Why do we need HSR?
- Why are we so concerned with validity and reliability?
- What is the value of the nominal group technique?

How to explain

In all three types of explanations, the most common technique that teachers employ is the use of **examples** or illustrations. Examples are necessary to:

- Clarify, verify, or substantiate concepts; and
- Assist the student in applying principles and generalizations to a specific instance.

For example, the terms validity and reliability can be explained using examples and illustrations.

> **NOTE:**
>
> At this point the module facilitator can ask another facilitator to give a short demonstration of an explanation involving examples and illustrations using the material in Annex 12B.1. Afterwards, discuss important aspects of the demonstration, linking it to the presentation on deductive and inductive approaches that follows.

Ideas can be explained in two ways:

Deductively

A generalization or principle is given, then examples are deduced from the principle.

Inductively

An example or a set of observations is given and based on these observations a principle or generalization is developed or induced.

For example, a topic such as open-ended questions can be explained deductively or inductively:

Deductively

1. Start the explanation by defining open-ended question. Give an example.
2. Elaborate on the definition (e.g. what is meant by free response).

Inductively

1. Start by describing a scenario in which there is a high-drop out rate among Village Health Committee members. Ask one of the students to play the role of a key village informant.

3. Ask participants to give their own examples of open-ended questions.

4. Discuss their questions and the range of answers that can be given.

5. Bring out the relationship between the examples given in step 3 and the definition or principle given in step 1.

Summary

When using a deductive approach, the trainer explains the principle fully to enable participants to **deduce** examples from the principle.

Ask him or her, "Why do you think some members of the Village Health Committee stopped attending the meeting?"

Possible answers might include:

- Incompatible personalities,
- Differences in educational or economic background,
- Unsuitable hours for meetings,
- Poor incentives, etc.

Q. "How would you describe such responses?"
A. "They are opinions/thoughts that come to our minds."
Q. "Why did you say...?"
A. "Because..."

2. Now, ask another question (closed).

Q. "Do you think that unsuitable meeting times would contribute to the high dropout rate?"
A: "Yes." (or no)

3. Focus the participants' attention on the two types of questions.

Q. "What is the difference between the first two questions and the third?
A. After probing, prompting, etc., the final answer would probably be "open-ended and closed questions.

4. The participants can then be guided to formulate a generalization about the relationship between open-ended questions and free responses and closed questions and forced answers.

Summary

When using an inductive approach, the trainer gives one or more examples, then assists the participants in coming up with the general principle.

Both deductive and inductive processes promote learning. Deductive learning assists participants in testing theories and their application to the solution of problems. Inductive learning helps them to generalize concepts and theories from experience.

Guiding principles in making explanations interesting

- Adopt either the deductive or inductive method.
- Provide emphasis by means of gestures, movements, and changes in voice quality.
- Use simple language.
- Use appropriate pauses.
- Use the blackboard to indicate essential points.
- Vary the speed of delivery.
- Interject humour.
- Use examples where possible.

SUMMARY

Explaining is an essential part of teaching. To explain is to make something that is not understood by an audience understandable. Effective teachers explain by use of the correct terminology, examples, and skillful organization of ideas.

Teachers can use either a deductive or an inductive approach to teaching a subject. When using the deductive approach, the teacher explains the principle fully and asks participants to **deduce** examples. When using the inductive approach, the teacher gives examples, then assists the participants in coming up with the general principle. Both approaches promote learning.

INSTRUCTIONS FOR THE NEXT DAY'S SESSION: Microteaching practice session - Explaining

Pass out Handout 12B.1 (the instructions for the session on explaining) to all participants. Describe how the participants should prepare for the practice session, reviewing the instructions in the handout. Mention that the participants can use part of the lecture they prepared earlier on study type for their presentations, if they wish. Emphasize that the topic can be simple and brief, as the participant will have only 5 minutes in which to do it. (Mention that the practice sessions will be videotaped and played back for critique, if this is planned.)

MICROTEACHING PRACTICE SESSION - Explaining

Guidelines for organizing and conducting the microteaching practice session

Before conducting the session:

1. Read the guidelines for the preparation of microteaching sessions (in Module 12A) and follow instructions for the preparation of the session.
2. Read tips for effective critiquing (also in Module 12A).
3. Describe for the participants the logistics and schedule of the practice session and how they are going to be critiqued.
4. Give out the appraisal guide (Handout 12B.2) and explain how to use it.

During and after the session:

1. Follow the guidelines provided in Module 12A.

Handout 12B.1. Microteaching practice session: Explaining.

Instructions for participants:

1. Using any topic in HSR, work individually to prepare a 5-minute lesson (at most) using the skill of explanation. Use the following steps as guidelines:

   - Decide precisely what is to be explained.
   - Identify the key points.
   - Design the explanation using an inductive or deductive approach, using examples and illustrations when appropriate.
   - Make a summary.

2. Present your lesson during the practice session.

3. A feedback session will follow that will include a play back of the video and a critique of your performance. Please feel free to critique your own practice session. Other participants and the facilitators may give suggestions as well.

Handout 12B.2. Appraisal guide for the microteaching practice session: Explaining

Name of participant/teacher: Name of evaluator:
Topic: Date:

Directions: Place a tick (✓) in the appropriate box.

Clarity of language	Yes	No	Comments
1. The teacher used appropriate vocabulary in her/his explanation	☐	☐	
Approaches to explanation			
2. The teacher used relevant examples to suit the nature of her/his explanation	☐	☐	
3. The teacher used illustrations that were appropriate	☐	☐	
4. The teacher used the deductive approach	☐	☐	
5. The teacher used the inductive approach	☐	☐	
Organization			
6. The teacher used statements to link various elements of the explanation	☐	☐	
7. The teacher summarized main points:			
• progressively during the explanation or	☐	☐	
• at the end of the lesson	☐	☐	
Emphasis			
8. The teacher emphasized points by using:			
• variation in voice quality,	☐	☐	
• gestures and movements, or	☐	☐	
• pictures, demonstrations, or actual objects.	☐	☐	
Feedback			
9. The teacher checked to see if the students understood the main points of the lesson by asking them to give examples illustrating these points.	☐	☐	

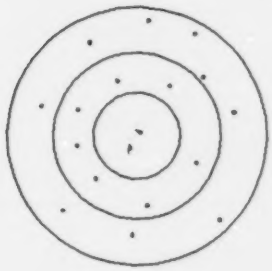
Annex 12B.1. Demonstration of the microteaching skill explaining

Explaining the concept of VALIDITY AND RELIABILITY in research findings

Validity means that the conclusions are true.

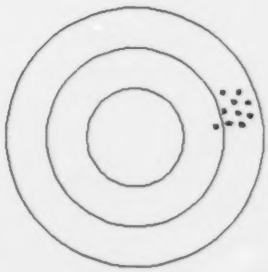
Reliability means that someone else using the same method in the same circumstances should be able to obtain the same findings.

The following diagram illustrates the concepts of validity and reliability. We aim at the centre of the target and if we hit it, our conclusions are **true**. If repeated attempts achieve similar results, they are **reliable**.



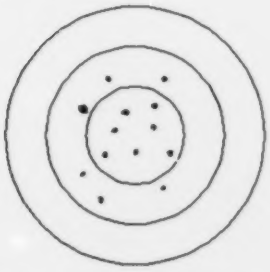
Neither valid nor reliable

The aim does not hit the centre of the target, nor do repeat attempts hit the same spot.



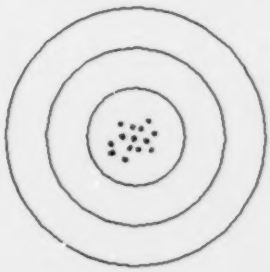
Fairly reliable but not valid

The aim does not hit the centre of the target (not valid), but repeated attempts do hit



Fairly valid but not reliable

The aim is fairly close to the centre of the target (fairly valid), but repeated attempts do not hit the same spot. Some are to the left, some to the right (not reliable).



Valid and reliable

The aim hits the centre of the target, and repeated attempts hit the same spot.

Illustrate the concept with the following example:

Researchers set out to determine the body weight of three children whose true body weights were 10 kg, 15 kg, and 20 kg. Four different weighing scales were used and each produced a different set of results. Display the results one by one and ask the participants to characterise each set as valid, reliable, neither, or both. When they have offered their answers, display the last column in each table.

Child	True body weight	First set of results	Neither
A	10 kg	8 kg	valid
B	15 kg	18 kg	nor
C	20 kg	19 kg	reliable

Explanation: This set of results is not valid because the results are not the true body weights. It is not reliable because the results are sometimes too high and sometimes too low, and the relative difference from the true body weight varies from child to child.

Child	True body weight	Second set of results	Reliable,
A	10 kg	11 kg	but
B	15 kg	16.5 kg	not
C	20 kg	22 kg	valid

Explanation: This second set of results is not valid because the results are not the true body weights. It is reliable because the results are too high by the same proportion (10%) for every child.

Child	True body weight	Third set of results	Fairly
A	10 kg	10.15 kg	valid but
B	15 kg	14.85 kg	not
C	20 kg	20.33 kg	reliable

Explanation: This third set of results is fairly valid because the results are almost the true body weight. It is not reliable because two weights are too high and one is too low and the proportion by which they differ from the true body weight is different for each child.

Child	True body weight	Fourth set of results	
A	10 kg	10 kg	Valid
B	15 kg	15 kg	and
C	20 kg	20 kg	reliable

Explanation: This fourth set of results is both valid and reliable because the results are the same as the true body weights, and these results are obtained for every child.

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 12C:

MICROTEACHING:
QUESTIONING AND REINFORCEMENT

The rationale and content of the modules in this volume

Why have this module	Module	Content
To plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
To discuss how to make a lecture an effective learning experience	Module 10: The lecture method	• Purpose of lectures • Preparation of lectures • Effective delivery
To review how to make and use audiovisual aids effectively	Module 11: Use of audiovisual aids	• Types and purpose of audiovisual aids • Preparation and use of transparencies
To learn teaching skills through practice and constructive feedback	Module 12: Microteaching	• Explaining • Questioning and reinforcement • Composite teaching skills • Practice and critique
To practice facilitating learning during small group discussions	Module 13: Facilitating small group discussions	• Facilitating small group discussions • Practice and critique • Managing change and conflict
To determine, for any country: • Who needs training in HSR • What type(s) of training strategies are appropriate • What should be the content of training • What training materials are available How to use the available material to plan a short course	Module 14: Training in health systems research	• Process of developing HSR in a country • Training needs and strategies • Training materials that are available • Planning a short course in HSR
To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Module 12C: MICROTEACHING: QUESTIONING AND REINFORCEMENT

OBJECTIVES

At the end of this module, participants should be able to:

1. Describe what is meant by "questioning and reinforcement."
2. Describe the basic and advanced types of questioning.
3. Describe several ways to make the use of the questioning skill more effective.
4. Demonstrate the skills of questioning and reinforcement.

CONTENTS

The microteaching technique of questioning and reinforcement (lecture/discussion)

Microteaching practice session - questioning and reinforcement

MATERIALS

Handout 12C.1. Microteaching practice session: Questioning and reinforcement
Handout 12C.2: Appraisal Guide for microteaching practice session: Questioning and reinforcement

THE MICROTEACHING TECHNIQUE OF QUESTIONING AND REINFORCEMENT (lecture/discussion)

What is questioning?

Questioning is one of the important skills of teaching. It is said to be the most complex of all the teaching skills and possibly one of the most underused.

The purposes of questioning[1]

1. **Basic:**

   - To involve participants actively in the learning process;
   - To arouse interest and curiosity about a topic;
   - To focus attention on a particular point or a specific concept;
   - To encourage the participants to get into the habit of asking questions of themselves and of others; and
   - To encourage thinking skills.

2. **Advanced:**

   - To help participants acquire, organize, use, and evaluate information;
   - To help them form and express ideas based on available information; and
   - To help them improve their self-concepts by providing them with opportunities to develop new ways of thinking.

Types of questioning

Corresponding to these two sets of purposes, there are two major types of questions: the basic type and the advanced (or higher order) type.[2]

The basic type of question

Basic questions are used for the most part to motivate and obtain active student participation in the learning process. Hence, the questions must encourage the students to participate and the responses must be achievable. Two types of questions fall under this category: factual or descriptive questions and clarifying questions.

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[1] Brown, G. 1975. Microteaching: a programme of teaching skills. Methuen & Co. Ltd, London, England.

[2] Allen, D., and Ryan, K. 1969. Microteaching. Addison-Wesley, CA, USA.

Examples of factual or descriptive questions:

- "What are the activities of the Village Health Committee?"
- "What do you think are the reasons for a high drop-out rate among Village Health Committee members?"
- "How do you ensure quality control in data collection?"

Examples of clarifying questions:

- "Could you tell me what you mean by that?"
- "What are your reasons for saying that ignorance is the main reason for poor attendance at prenatal clinics?
- "Why do you say the data collection process has to be supervised closely?".

These are open-ended questions that encourage participants to be open and that do not make any presuppositions about their responses. The questions are simple and non-threatening. They encourage thinking and arouse interest and curiosity while focusing on a particular point or concept.

The advanced type of question

Advanced or higher-order type questions prod participants to think beyond the facts, descriptions, or set of circumstances. They help participants to establish relationships, compare and contrast concepts and principles, make inferences, understand causes and effects, and develop rules and principles rather than merely define them. In addition, they help participants use ideas freely and critically.

Examples of higher-order questions:

- "What is the relationship between poverty and illness?"
- In your study, you have found that children who have had preschool education subsequently perform better in primary school:

  "Why are you still unable to conclude that preschool education leads to better school performance?"
- "Having identified the confounding factors, what generalizations can you make about the relationship between preschool education and primary school performance?"

Use of questions

There are simple ways to make the use of the questioning skill effective:[3] [4]

1. Phrasing

- Make the questions brief and use words that are familiar to participants.
- Phrase the questions so as to give strong clues to those participants who are less able.

2. Focusing

- Begin with a broad, relatively easy question to involve as many participants as possible.
- Then, as information comes in, **focus** on a single task or aspect of the topic.

For example:

- "What types of questions can be used in a questionnaire?"
  "Are there any other types of questions that can be used?"
- "What do you **mean** by an open-ended question?"
- "Give an example of an open-ended question."
- "What are the advantages of open-ended questions?"

The last three questions **focus** on a specific aspect of the topic.

3. Directing

- Pose the question to the whole group first.
- Pause.
- Select (direct) one person to answer by using his or her name, pointing, or nodding.

4. Redirecting

- Invite responses to the same question from several participants for the purpose of maintaining attention on the question or validating responses.

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[3] Allen, D.W., and Ryan, K.A. 1969. Microteaching. Addison-Wesley, CA, USA.

[4] Brown, G.A. 1975. Microteaching: a programme of teaching skills. Methuen & Co., Ltd, London, England.

For example, on receiving one answer the teacher may ask another participant:

"Do you agree with what Mr Y said?"

or, if the answer given was not complete, the teacher might ask another participant:

"What other explanations might there be?"

- Sometimes, the first answer may be inaccurate or totally wrong. Then the teacher should **redirect** the question to someone else without offending the first respondent by simply asking:

"Mr X, would you like to help Mr Y?"

Redirecting is useful in getting active participation from several participants.

5. **Distributing**

- Distribute the questions at random throughout the teaching space, to cover the whole group. Distributing questions will ensure:

  - Wide involvement,
  - Eye contact with everyone, and
  - Alertness in the participants.

6. **Pausing**

- Pause for a few seconds after asking a question, then call upon someone to answer. Pausing will:

  - Give time for everyone to get ready to answer,
  - Provide opportunity for less able participants to think through the question/answer, and
  - Prevent non-active participants from remaining uninvolved.

7. **Prompting**

- Include a clue in the question to indicate the scope or type of answer required. The clue might even lead to the answer. Use this technique when a participant needs help in crystallizing his thoughts, (e.g., "We said earlier that before arriving at any conclusions, we need to consider the confounding factors. Now, do you still think that preschool education leads to better school performance?").

8. **Probing**

- Ask questions which enable a participant to think of a better answer that goes beyond his or her first simple response. **For example:**

"You said that income of parents may contribute to both preschool education and school performance. How can this be so?"

A: "It is possible because..."

Q: "Can you give an example?"

9. Paraphrasing

- A paraphrase puts into other words the essence of what the participant has said. **For example**:

  Participant: "They do better in primary school if their parents have more pay because they are more likely to have received preschool education."

  Teacher: "Are you saying that the higher the income of parents, the more likely the children are to be sent for preeducation, and thus the better they are likely to perform in primary school?"

- Paraphrasing is useful for clarifying points and checking the accuracy of what has been heard.

Guiding principles for questioning

There are a number of general principles, which can be easily practised in any situation.

1. As a general rule, direct questions to the whole class, then pause to allow time for the class to think. Then direct the question to a particular student.

2. Suit the questioning to the level of participants, the participants' educational background and experience, and the different abilities within the group.

3. Always prepare key questions carefully before each class.

4. Handle responses in a sensitive manner.

5. If possible, avoid:

   - Repeating one's own question before answers are given (as this may confuse the audience);
   - Repeating the student's answer (as this slows down the pace);
   - Answering one's own question (as this frustrates the audience); and
   - Questioning in a way that encourages chorus answers (as it makes it difficult to assess the audience's level of understanding). **For example:**

     "Can anybody tell me...?"
     "Do you all...?"

What is "reinforcement"?

Essentially reinforcement means that behaviour is rewarded either pleasantly or unpleasantly. A pleasant reward for behaviour (for example, a smile, saying "well done," or "good") constitutes positive reinforcement. An unpleasant reward for behaviour (for example, "bad answe," "you're not trying very hard") constitutes negative reinforcement. No response for behaviour, either pleasant or unpleasant, is non-reinforcement.

In the classroom, reinforcement is the skill we use to describe a teaching technique that can modify or change behaviour of participants in a number of positive ways. The skillful use of positive reinforcement and an accepting attitude on the part of the teacher can do a great deal to establish good rapport, to stimulate class participation, and to encourage weak, shy or hesitant students to express themselves. The skillful use of positive reinforcement and a minimal use of negative reinforcement can help to eliminate an important deterrent to learning: FEAR.[5]

Reasons for using reinforcement

1. To increase participants' confidence and thus assist them in developing their own learning experiences;

2. To encourage persistence, and as a result to help the participants to achieve more;

3. To attract and hold the attention of the participants during a period of instruction; and

4. To improve classroom discipline and modify disruptive or inappropriate behaviour.

How to use reinforcement

There are various techniques of positive reinforcement that can be incorporated into a teaching session. The techniques are called cues. For instance, a teacher may say "good" when a participant gives a correct answer. This reward serves as a cue that the answer is acceptable. These cues, which reinforce participant responses, may either be verbal or nonverbal.

1. Verbal reinforcement

This involves the use of spoken words. Depending on the level of achievement, such words may include: "yes," "correct," "good," "excellent," or use of the person's name in statements such as:

- "Your work indicates a lot of preparation,"
- "This is really impressive,"
- "The questions are so well formulated," or
- "You are a very good supervisor."

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[5] 1967. Microteaching teaching: a description. Stanford University Press, Palo Alto, CA, USA.

2. Nonverbal reinforcement

This can take many forms. **For example:**

- **Gestural**
  - Using facial expressions such as a smile or a delighted laugh; or
  - Bodily expressions such as clapping, nodding, or raising arms.
- **Proximity**
  - Displaying interest in the participant's performance by moving nearer, standing next to or sitting near him or her.
- **Contact**
  - Showing approval by patting participant on the back or shaking hands.
- **Activity**
  - Giving a participant a task he or she prefers to do as a reinforcement for work that has been performed.
- **Token**
  - Writing comments on working papers; or
  - Giving awards, high marks, or recommendations.

Guiding principles for using reinforcement

1. Show genuine warmth and enthusiasm (to indicate you really mean it when you say "good").
2. Make an attempt to vary the style or type of reinforcement (as constant repetitions will render a reinforcement meaningless).
3. Use positive reinforcement rather than negative, if possible. Should negative reinforcement have to be used, do it skillfully. For example, if someone is way off the subject and you desperately want to get the class back on track, don't say "Shut-up!" but "That's very interesting, but maybe we can discuss it some other time and get back to our main topic for today."
4. Before using reinforcement, consider the participant's age, sex, and social group. Not only must there be a relationship between the reinforcement and the behaviour being reinforced, the participant must also have an understanding of this relationship.

INSTRUCTIONS FOR THE NEXT DAY'S SESSION: Microteaching practice session - Questioning and reinforcement

Pass out Handout 12C.1 (the instructions for the practice session on questioning and reinforcement) to all the participants. Describe how the participants should prepare for the practice session, reviewing the instructions in the handout. Emphasize that the topic can be simple and brief, as the participant will have only 5 minutes in which to do it. (Mention that the practice sessions will be video-taped and played back for critique, if this is planned.)

MICROTEACHING PRACTICE SESSION - Questioning and reinforcement

Guidelines for organizing and conducting the microteaching practice session

Before conducting the session:

1. Read the guidelines for the preparation of microteaching sessions (in Module 12A) and follow instructions for the preparation of the session.
2. Read tips for effective critiquing (also in Module 12A).
3. Describe for the participants the logistics and schedule of the practice session and how they are going to be critiqued.
4. Pass out the appraisal guide (Handout 12C.2) and explain how to use it.

During and after the session:

1. Follow the guidelines provided in Module 12A.

Handout 12C.1. Microteaching practice session: Questioning and reinforcement

Instructions for participants:

1. Using any topic in HSR, work individually to prepare a presentation that will take 5 minutes at most and that uses questioning and reinforcement techniques.

2. Present your topic during the practice session.

3. A feedback session will follow and will include a play back of the video and a critique of your performance. Please feel free to critique your own practice session. Other participants and the facilitators may give suggestions as well.

Handout 12C.2. Appraisal guide for microteaching practice session: Questioning and reinforcement

Name of participant/teacher: Name of evaluator:
Topic: Date:

Directions: Place a tick (✓) in the appropriate box

	Yes	No	Comments
QUESTIONING			
1. Type of questions:			
a. Factual/descriptive	☐	☐	
b. Clarifying	☐	☐	
c. Higher-order	☐	☐	
2. Component skills			
a. Phrasing - clarity and brevity	☐	☐	
b. Focusing	☐	☐	
c. Directing	☐	☐	
d. Distributing	☐	☐	
e. Pausing	☐	☐	
f. Prompting	☐	☐	
g. Probing	☐	☐	
h. Paraphrasing	☐	☐	
REINFORCEMENT			
1. Positive verbal	☐	☐	
2. Positive gestural	☐	☐	
3. Contact	☐	☐	
4. Proximity	☐	☐	
5. Negative reinforcement	☐	☐	

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 12D:

COMPOSITE TEACHING SKILLS

The rationale and content of the modules in this volume

Why have this module	Module	Content
o plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
To discuss how to make a lecture an effective learning experience	Module 10: The lecture method	• Purpose of lectures • Preparation of lectures • Effective delivery
To review how to make and use audiovisual aids effectively	Module 11: Use of audiovisual aids	• Types and purpose of audiovisual aids • Preparation and use of transparencies
To learn teaching skills through practice and constructive feedback	Module 12: Microteaching	• Explaining • Questioning and reinforcement • Composite teaching skills • Practice and critique
To practice facilitating learning during small group discussions	Module 13: Facilitating small group discussions	• Facilitating small group discussions • Practice and critique • Managing change and conflict
To determine, for any country: • Who needs training in HSR • What type(s) of training strategies are appropriate • What should be the content of training • What training materials are available How to use the available material to plan a short course	Module 14: Training in health systems research	• Process of developing HSR in a country • Training needs and strategies • Training materials that are available • Planning a short course in HSR
To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Module 12D: COMPOSITE TEACHING SKILLS

OBJECTIVES

At the end of this module participants should be able to:

1. Describe what is meant by "composite teaching skills."
2. Demonstrate the use of composite teaching skills.

CONTENTS

Composite teaching skills (lecture/discussion)

Practice session - composite teaching skills

MATERIALS

Handout 12D.1. Practice session: Composite teaching skills
Handout 12D.2. Appraisal guide for practice teaching session: Composite teaching skills

COMPOSITE TEACHING SKILLS (lecture/discussion)

We have just observed how in microteaching the complex act of teaching is broken down into simpler, more easily practised skills such as explaining and questioning and reinforcement (the two chosen for practice).

But a teaching session does not consist of explaining or questioning separately. Classroom teaching as we know is a combination of many identifiable skills and is an extremely complex process dealing with many variables (e.g., teachers' and students' personality characteristics, intelligence, motivation, and teaching skills). If we observe a teacher over a long period of time, we will note that he or she uses certain skills or techniques many times. Also, different teachers have different styles of teaching and use certain skills more often than others. But, whatever the skills, each one of them can be identified and categorized as we have seen in microteaching.

In microteaching, we have deliberately separated and practised each skill for the purpose of mastering it. Before we actually use these skills in formalized teaching situations (for example, during the actual conduct of the HSR training course being planned), we will make an attempt to combine these skills in a teaching session within an informal setting. As in the microteaching session, just a few participants will be asked to play the role of student. Sessions will last 7 to 10 minutes, with fairly structured content utilizing a number of microteaching skills, and feedback will be immediate.

In the composite teaching skills session, participants will make an attempt to teach a portion of the lecture prepared on an aspect of the study design. The presentation should include:

- A brief introduction;
- Use of both explanation and questioning and reinforcement techniques;
- Use of teaching aids; and
- Closure in the form of a summary or conclusion.

Each presenter should confine the actual content to not more than 7-10 minutes, including use of the transparency(cies). The presentation will be followed by immediate feedback, using videotape as in microteaching sessions.

The reason for including the composite teaching skills sessions is to familiarize students with the art and complexity of the teaching process as a basis for preparing for their roles as trainers.

INSTRUCTIONS FOR THE NEXT DAY'S SESSION: Composite teaching skills

Pass out Handout 12D.1 (the instructions for the practice session on composite teaching skills) to all participants. Describe how the participants should prepare for the session, reviewing the instructions in the handout. Emphasize that the participants will have only 7 to 10 minutes each to give their lessons. If there is not time for all participants to give lessons, select three or four to make presentations, either by asking for volunteers or asking the group to choose specific students to participate. The rest of the group will be expected to observe, critique, and hopefully learn from their colleagues' experiences.

PRACTICE SESSION: Composite Teaching Skills

Guidelines for organizing the composite teaching skills practice session

The composite teaching skills practice session requires that each participant:

- Teach for 7 to 10 minutes (on any topic on HSR), ideally including:
  - An introduction,
  - Content using the explanation and questioning and reinforcement skills,
  - Teaching aids, and
  - Closure in the form of a summary or conclusion.
- Be critiqued for 15-20 minutes.

  (Please see Annex 1 of Module 12A.)

Each teach and critique session will take at least 30 minutes.

Handout 12D.1. Practice session: Composite teaching skills.

Instructions for participants:

1. Using any topic in HSR, prepare a 7 to 10 minute lesson. The lesson should include:
   - A brief introduction;
   - Use of both the explaining and questioning techniques, interspersed with each other, as appropriate;
   - Use of transparencies previously prepared, the blackboard or flip chart, and/or some other teaching aids; and
   - A brief conclusion/summary.
2. Present your lesson during the practice session.
3. A feedback session will follow that will include a play back of the videotape and a self/peer/facilitator critique of your performance.

Handout 12D.2. Appraisal guide for composite teaching session

Name of participant/teacher:
Topic:

Name of evaluator:
Date:

Directions: Place a tick (✓) in the appropriate box

	Yes	No	Comments
INTRODUCTION			
1. Teacher introduced the topic	☐	☐	
2. Made good link between introduction and topic	☐	☐	
3. Gained audience attention	☐	☐	
EXPLAINING			
1. Showed good understanding of topic	☐	☐	
2. Explained material using examples/illustrations	☐	☐	
3. Used appropriate language	☐	☐	
QUESTIONING AND REINFORCEMENT			
1. Asked students questions	☐	☐	
2. Answered students' questions	☐	☐	
3. Gave appropriate reinforcement	☐	☐	
CLOSURE			
1. Reiterated key points	☐	☐	
2. Summarized	☐	☐	
AUDIOVISUAL AIDS			
1. Used appropriate AVAs	☐	☐	
DELIVERY			
1. Enthusiastic	☐	☐	
2. Confident	☐	☐	
3. Maintained eye contact	☐	☐	

OVERALL RATING: Excellent ☐ Good ☐ Average ☐ Poor ☐

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 13:

FACILITATING SMALL GROUP DISCUSSIONS

The rationale and content of the modules in this volume

Why have this module	Module	Content
To plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
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To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Module 13: FACILITATING SMALL GROUP DISCUSSIONS

OBJECTIVES

At the end of this module, participants should be able to:

1. Describe facilitator skills that are needed to support learning during small group discussions.
2. Demonstrate techniques for facilitating learning in such groups.

CONTENTS

Information for the module facilitator

Facilitating small group discussions (lecture/discussion)

Practice session: Facilitating small group discussions

Managing change and conflict (lecture/discussion)

MATERIAL

Handout 13.1. Appraisal guide for practice session on facilitating small group discussions

INFORMATION FOR THE MODULE FACILITATOR

Small group discussion is the teaching-learning method that is most frequently used in the HSR Training Series. The success of each course is very dependent on the ability of trainers to facilitate these small group discussion sessions. Therefore, this session provides theory and practical tips on facilitating small group discussions, as well as practice in playing the role of facilitator.

General aspects of facilitating small group discussions and practical tips are covered in the first session. Next, a practice session will give the participant a chance to try out a number of the skills discussed. The practice session will include some situations in which the facilitator must deal with conflict within the group. The last session will provide an orientation to managing change and conflict in the small group situation.

FACILITATING SMALL GROUP DISCUSSIONS (lecture/discussion)

Practical tips for preparing for and initiating small group discussions

1. **Prepare any materials needed** for the discussion. These may include:

    - Documents or data as reference material (e.g., group work directions, handouts); and
    - Teaching equipment such as projector and transparencies, blackboard and chalk, or flip-chart paper and markers, to assist group members in focusing on the topic and organizing their ideas.

2. **Make any necessary physical arrangements** (i.e., make sure that chairs and tables are arranged so that participants in the discussion will be able to see each others' faces and are close enough to hear each other comfortably).

3. **Set the tone for the discussion.**

    - If the participants do not know each other ask them to introduce themselves.
    - Stress that it is acceptable to acknowledge one's ignorance, if necessary.
    - Set the tone for the discussion, fostering an atmosphere that is friendly and relaxed and a mood that is reasonably lighthearted, yet purposeful.

4. **The facilitator should inform the participants concerning:**

    - The objectives of the session;
    - Questions or points to be covered in the discussion;
    - The time limits; and
    - Expected products for presentation at the end of the discussion, such as:

        - A list of recommendations;
        - Development of a specific step in the research proposal or research report;
        - A list of advantages and disadvantages; or
        - One or more group decisions.

5. **The facilitator should ask the participants to elect a chairperson and secretary/reporter.** (In some cases, the facilitator may serve as group leader, although it's often best to encourage the group to begin learning to function under its own direction.)

Facilitating small group discussions

To support the group process the facilitator must:

- Get the group started; and
- Keep it going.

Facilitator skills useful for supporting the group process include:

- Exposition - explaining, describing;
- Questioning - probing, prompting, recalling, clarifying, analyzing;
- Listening - identifying main points, relationships, flaws, implications;
- Giving positive reinforcement - praising, encouraging, nodding your head, smiling;
- Giving negative reinforcement - remaining neutral, falling silent, discouraging, avoiding eye contact, withdrawing physically from the group;
- Reacting - echoing, paraphrasing, relating to others, raising problems, moving on; and
- Summarizing.

The facilitator must be able to select appropriate strategies and know when to apply them to:

- Inform,
- Control,
- Facilitate,
- Advise,
- Participate unobtrusively, or
- Withdraw silently.

For example, if the group discussion session is intended to enable members to integrate new information and apply it, the facilitator could **inform** the group about the task expected of them and then **participate unobtrusively** or even **silently withdraw**. (The withdrawal technique was used by the facilitators during the group discussion in Module 2 when participants were applying information from their preworkshop reading.)

In contrast, during the group sessions on various steps of the research process, the facilitator would have to **control**, **facilitate**, and **advise** if participants are not familiar with the procedures that are suggested for dealing with each step. These different facilitator roles can be accentuated by physical behaviour (e.g., sitting outside the group when participating unobtrusively and joining the group circle when facilitating).

PRACTICE SESSIONS - Facilitating small group discussions

This exercise involves four practice discussion sessions, which will give each of the participants one chance to play the role of facilitator. Two to three hours should be set aside for the exercise, as each group discussion will last 20-30 minutes, with 15 additional minutes for feedback.

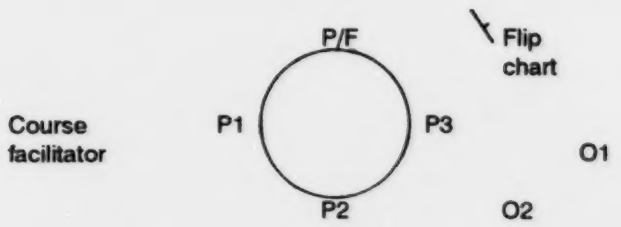
The participants should be divided into groups of a minimum of six members for the exercise. Each of the participants should be assigned one of the following roles:

- Participant/facilitator (P/F)
- Participant 1 (P1)
- Participant 2 (P2)
- Participant 3 (P3)
- Observer 1 (O1)
- Observer 2 (O2)

Preparation for group work

On the day before the group work, the facilitator will prepare the group for the practice small-group discussions by describing the task to be completed during the session, then selecting one of the participants as participant/facilitator. Participants should be assigned roles that suit their personalities, because it is very difficult to play someone else's personality at short notice. The facilitator will give the participant/facilitator and each of the participants a sheet of paper outlining his or her assigned role in the discussion. The papers will tell each of the participants (P1, P2, and P3) exactly who they are and how they are supposed to behave in the group discussion. Each participant will know only his or her role in the group and be unaware of the roles of the other participants. The paper for the participant/ facilitator will describe the task to be undertaken and who each of the participants is, but *not* what role each of them will play.

Group work settings should be arranged for each of the groups, with chairs in a circle for three participants and one participant/facilitator, and chairs outside the circle for the course facilitator and participants assigned to observe the group. A flip chart should also be made available.



Before the first practice session starts, the facilitator in charge of the module should briefly review the points made in the lecture/discussion on facilitating small group discussions. He or she should then describe how the practice sessions will be organized:

1. Each group of participants and a facilitator will go to one of the group discussion areas that have been set up.

2. The participant/facilitator (P/F) will then be given 20-30 minutes to serve as facilitator in the first practice session. The course facilitator assigned to the group will observe, without taking part in the discussion in any way, and take notes on any points that should be made in the feedback session that will follow, using the appraisal guide in Handout 13.1.

3. After 20-30 minutes, the course facilitator will stop the practice session and chair an informal critique. As in the microteaching sessions, feedback should include self-evaluation, peer evaluation, and teacher evaluation. If the participant/facilitator had difficulty in dealing with certain problems that arose during the group discussion, the course facilitator or other participants should suggest alternative strategies for dealing with the situation.

4. After the critique session, the course facilitator should prepare the group for the second practice session, assigning a different participant the role of participant/facilitator. Papers describing the roles for session 2 should be distributed to each of the players and the session and critique should be held, as in session 1. Sessions 3 and 4 should then be held in a similar manner.

5. After all four practice sessions have been completed, the course facilitator assigned to the group should chair a short final discussion period, in which he or she asks the participants to summarize what they have learned from the practice sessions and then makes some final observations.

Instructions for four sample practice small group discussions are given on the following pages. These can be used, as they are, for the practice sessions, or other similar scenarios can be prepared.

Small group discussion - Practice session 1

Task: To do a problem analysis of the following situation. District XYZ has a small hospital that provides both in-patient and out-patient care. There is fairly good transportation in the area and many residents use the services of a larger hospital in a neighbouring district. Hospital XYZ is underused, the staff are bored, and morale is low.

Participant/facilitator's role:

Your task is to facilitate the discussion session in which your group of participants will be working to complete a problem analysis for their study of the low utilization of the district hospital. You will ask them to begin by trying to identify the core problem to be analyzed. The group consists of:

Participant 1: A mid-level administrator at the district hospital
Participant 2: A sociologist from the local university
Participant 3: A researcher from the ministry of health research unit

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Role of Participant 1:

You are a mid-level administrator at the district hospital. Your small group is planning a study of the low utilization of the district hospital. Your task during this group work session is to do a problem analysis for this study, beginning with the identification of the core problem to be analyzed. You feel somewhat defensive about the problems your district hospital is having and any analysis that might place what you feel would be unfair blame on the hospital staff. You feel the core problem is that patients don't know how to use the health system properly.

Role of Participant 2:

You are a sociologist from the local university. Your small group is planning a study of the low utilization of the district hospital. Your task during this group work session is to do a problem analysis for the study, beginning with the identification of the core problem to be analyzed. You have held some initial informal discussions with community members and think their observation that the district hospital provides poor care is likely to be correct. Therefore, you think the core problem is that the hospital staff provides poor care for the local population.

Role of Participant 3:

You are a researcher from the ministry of health research unit. Your small group is planning a study of the low utilization of the district hospital. Your task during this group work session is to do a problem analysis for the study, beginning with the identification of the core problem to be analyzed. You think that the core problem is low utilization of the district hospital. You feel that during this first try at analyzing the problem the group should be open to all possible problems, listing all ideas, even if all group members do not agree. This, you feel, will provide as many ideas as possible about the origin of the problem. The scope of the problem can be narrowed down later.

Small group discussion - Practice session 2

Task: To develop objectives for a study to determine the reason for low measles immunization coverage in District X.

Participant/facilitator's role:

Your task is to facilitate a discussion session in which your group of participants will be working to develop objectives for a study to determine the reason for low measles immunization coverage in District X. The group consists of:

Participant 1: A senior researcher from the local research institute
Participant 2: A middle-level health manager from the district health office of District X
Participant 3: A nurse from the District X health centre with some training in research

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Role of Participant 1:

You are a senior researcher from the local research institute. Your small group is planning a study of the reasons for low measles immunization coverage in District X. The two other team members in the group are health professionals, including a middle-level health manager from the district health office and a nurse from the health centre, who has some research training. Your task during this group work session is to develop the objectives for the study. You propose a number of research objectives that you believe should be included in the study.

Role of Participant 2:

You are a middle-level health manager from the health office in District X. Your small group is planning a study of the reasons for low measles immunization coverage in District X. The two other team members in the group are a senior researcher from the local research institute and a nurse from the district health centre. You have little knowledge of research techniques, but strong opinions. Your task during this group work session is to develop objectives for the study. You keep proposing objectives that are *program* objectives, rather than *research* objectives, because you really don't understand the difference. (For example, you propose objectives such as "To increase the percentage of children in District X that are fully immunized against measles," and "To make sure that the cold chain is operating properly.")

Role of Participant 3:

You are a nurse from the District X health centre, who has some training in research. Your small group is planning a study of the reasons for low measles immunization coverage in District X. The two other team members in the group are a senior researcher from the local research institute and a middle-level health manager from the district health office. Your task during this group work session is to develop objectives for the study. You remain quiet unless encouraged to speak, but when asked, give good suggestions.

Small group discussion - Practice session 3

Task: To identify possible sources of information for the literature and information review for a study of alternative systems for financing primary health care in Region Y.

Participant/facilitator's role:

Your task is to facilitate the discussion session in which your group of participants will be working to identify possible sources of information for the literature and information review for their study of alternative systems for financing primary health care in Region Y. The group consists of:

Participant 1: A economist on the faculty of the university in Region Y
Participant 2: The deputy director of the health office of Region Y
Participant 3: A junior researcher from the local research institute who has spent some time studying for a master's degree in a neighboring country

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Role of Participant 1:

You are an economist on the faculty of the university in Region Y. Your small group is planning a study of alternative systems for financing primary health care in Region Y. Your task during this group work session is to identify possible sources of information for the literature and information review for your study. You are most familiar with sources of information from outside the country, as you received your degree in Europe, and you feel these sources of information will provide valuable information.

Role of Participant 2:

You are the deputy director of the health office of Region Y. Your small group is planning a study of alternative systems for financing primary health care in Region Y. Your task during this group work session is to identify possible sources of information for the literature and information review for your study. You are a quite outspoken person by nature, with strong opinions. You know that no alternative systems for financing primary health care have ever been tried in Region Y. You feel nothing could be learned from elsewhere that would be likely to be applicable (especially if it is from Europe or the USA, which have very different economic situations than your country). Thus you feel the group should get on with designing a study comparing two alternative financing systems without doing a time-consuming literature review.

Role of Participant 3:

You are a junior researcher from the local research institute who has spent some time studying for a master's degree in a neighboring country. Your small group is planning a study of alternative systems for financing primary health care in Region Y. Your task during this group work session is to identify possible sources of information for the literature and information review for your study. You are a quiet person by nature, but do have some good ideas about studies that have been done on the same topic (financing of PHC) in the neighboring country where you studied. This country has conditions similar to those in your own country. You will give your ideas if encouraged.

Small group discussion - Practice session 4

Task: To identify the types of data collection techniques that should be used in a study of family planning knowledge, attitudes, and practices (KAP) in Country Z.

Participant/facilitator's role:

Your task is to facilitate the discussion session in which your group of participants will be working to identify the types of data collection techniques that should be used in their study of family planning knowledge, attitudes, and practices in Country Z. The group consists of:

Participant 1: An academician from the medical faculty
Participant 2: A middle-level manager from the ministry of health
Participant 3: A junior research officer

Role of Participant 1:

You are an academician from the medical faculty. Your small group is planning a study of family planning knowledge, attitudes, and practices in Country Z. Your task during this group work session is to identify the types of data collection techniques that should be used. You feel very strongly that there should be a nationwide sample survey so that the results can be generalized to the whole country.

Role of Participant 2:

You are middle-level manager from the ministry of health. Your small group is planning a study of family planning knowledge, attitudes, and practices in Country Z. Your task during this group work session is to identify the types of data collection techniques that should be used. You know that it will be your department in the ministry that will supply the personnel for data collection and also use the results. You suggest using focus group discussions to obtain the information because this type of technique does not require many resources and you know your department has limited time and personnel to devote to the study. You feel focus group discussions can provide valuable information that will be quite useful to your department in designing its family planning programme.

Role of Participant 3:

You are a junior research officer recently posted to a research institute. You have minimal experience in research. Your small group is planning a study of family planning knowledge, attitudes, and practices in Country Z. Your task during this group work session is to identify the types of data collection techniques that should be used. Because you have little experience in designing or conducting research projects, you listen quietly to the other group members and, if asked, support whichever suggestions appear most reasonable.

MANAGING CHANGE AND CONFLICT (lecture/discussion)

Facilitating the learning process

Learning involves change. A facilitator who understands the change process will be better able to support the group process. The change process involves:

Unfreezing ———> changing ———> consolidating

It is normal for participants to resist change. This resistance can arise from:

- Uncertainty when entering unknown territory; or
- A belief that change is not for the best.

Learning in HSR often involves reassessing concepts and beliefs that participants may have held for a long time. For example, the concept that research should be "scientific and objective" is widely translated to mean that the entire research process should be the sole preserve of the researcher. HSR introduces the concept that the potential users of research results should also be involved in the research process. This may generate feelings of uncertainty or even hostility. Trainers should recognize this and plan to reduce the threat posed by a new concept by assisting the participants in recognizing the relationship between the new concept and existing beliefs.

For example, in this course for training of trainers, because the facilitators recognized that participants would be from different research disciplines (e.g., clinical and biomedical research) and might have had no previous exposure to HSR, the group discussion in Module 2, Review of HSR, included a question on the similarities between HSR and other types of research *before* the question on the special characteristics of HSR.

Management of change during the group process

A facilitator can support the change process in the group by:

- Educating and communicating (i.e., helping the group see WHY change would be desirable). This helps in the unfreezing stage.

- Assisting members to participate in decision-making and supporting the process that leads to decision-making. For example, facilitators can use various strategies to involve all members of the group in the decision-making process. During the group work on problem analysis this can be done by inviting each group member to record three or four of the contributory factors on cards and stick them in appropriate places on the diagram.

- Negotiating (i.e., exchanging something of value in return for lessening resistance). This may be necessary when there is strong resistance from one member of the group (e.g., one member insists that a particular issue be included in the scope of the research project although the other members of the group do not agree). It may be possible to negotiate with that member so that he alone will work on the additional component and perhaps give the task of working on the other components to other members of the group.

Managing conflict situations

Conflict within the group may be functional or dysfunctional. Functional conflict can stimulate the learning process because it challenges members to evaluate their perceptions and understanding and stimulates new ideas and creativity. Dysfunctional conflict tends to disrupt the group process.

Conflict can arise from goal incompatibility, distortion of communication, or differences in perceptions and values.

Members of groups in an HSR training course will probably come from different academic disciplines, belong to different professional groups, and occupy different levels in the management hierarchy within health services. Conflict situations in group sessions are very common. Contributing factors include:

- Differences in the understanding and use of apparently common and simple terms. For example, a statistician who was discussing data with a beginning researcher talked about "data capture," meaning the act of transferring data from paper to the computer. The beginning researcher, however, thought it meant "capturing" data from the community and recording it on paper.

- Differences in background training and philosophy (e.g., bias toward a community approach, or an interest only in quantitative research techniques).

- Differences in priorities.

- Differences in level of knowledge (e.g., of epidemiology, sociology, or statistics).

It is important for facilitators to recognize that group sessions provide an opportunity for group members to learn from each other and to stimulate each other so that new ideas are developed.

Facilitators can support this process and manage potential conflict situations, by using techniques such as:

- Requesting clarification of the meaning of crucial words or phrases that are being used by group members;

- Inviting group members to state or justify their own perceptions of priorities; and

- Inviting group members to give simple, nontechnical explanations of concepts or approaches that are used in their own discipline, but which may not be familiar to members from other disciplines.

  For example "I'll do an NGT" may appear simple and clear to a social scientist, while to those with biomedical background it may be mysterious. It would be helpful to ask the social scientist to give a brief and simple explanation of what is meant by NGT (nominal group technique) and when this technique is useful.

Dealing with a participant who dominates the discussion

Techniques for dealing with a participant who talks too much and dominates group discussion include:

- Giving negative reinforcement to the participant, **for example** by:
  - avoiding eye contact, responding with silence to statements, questions, or suggestions from the participant; or
  - turning away from the participant.
- Giving positive reinforcement to other members of the group, **for example,** by:
  - inviting them to express their opinions; or
  - paraphrasing, emphasizing, or adding to ideas they have contributed.

  If the response from others is weak, the facilitator can ask them leading questions and build their confidence by providing positive reinforcement for their responses to these questions.
- If the dominant participant is undeterred by the above techniques, consider taking him or her aside and suggesting that the other participants need to be encouraged to make contributions and requesting his or her assistance in doing this.

References

Brownlee, A., Nchinda, T.C., and Mousseau-Gershman, Y. 1983. Course guide for trainers and administrators. WHO/AFRO-SHDS health services research course. Boston University Health Policy Institute, Boston, MA, USA.

Cox, K.R., and Ewan, C.E. 1982. How to improve small group teaching in medicine. *In* The medical teacher. Churchill Livingstone, New York, NY, USA. pp. 70-78.

Luthan, F. 1981. Organizational behaviour (3rd ed.). McGraw Hill, New York, NY, USA.

McGregor, D. 1960. The human side of enterprise. McGraw Hill, New York, NY, USA.

Myers, G.E., and Myers, M.T. 1980. The dynamics of human communication: a laboratory approach (3rd ed.) McGraw Hill, New York, NY, USA.

Robbins, S.P. 1984. Management: concepts and practices. Prentice Hall Inc., Englewood Cliffs, NJ, USA.

Handout 13.1. Appraisal guide for practice session on facilitating small group discussions.

Name of participant/facilitator: Date:
Task: Name of evaluator:

Instruction: Please place a tick (✓) in the appropriate box.

		Yes	No	Comments
1.	**Getting the group started**			
	Explains the task to be undertaken	☐	☐	
	Allows time for clarification and suggestions	☐	☐	
	Listens to what the group has to say	☐	☐	
	Adopts an encouraging attitude	☐	☐	
2.	**Keeping discussion going**			
	Informs/explains when group cannot proceed or misunderstands an issue	☐	☐	
	Uses questioning to readdress/redirect attention to the task	☐	☐	
	Uses positive reinforcement (verbal or nonverbal) to encourage participants	☐	☐	
	Reacts to participants answer(s) to prevent loss of information	☐	☐	
	Deals effectively with difficult participants	☐	☐	
	Withdraws silently when the group process is progressing well	☐	☐	
3.	**Ending group discussion**			
	Reminds group of time limit	☐	☐	
	Prompts someone to summarize	☐	☐	
	Clarifies/adds to the summary when necessary	☐	☐	

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 14:

TRAINING IN HEALTH SYSTEMS RESEARCH

A: IDENTIFYING TRAINING NEEDS IN HSR

B: PLANNING HSR TRAINING ACTIVITIES

Health Systems Research Training Package

Volume 5: Training of Trainers
for Health Systems Research

Module 14A:

IDENTIFYING TRAINING NEEDS IN HSR

The rationale and content of the modules in this volume

Why have this module	Module	Content
To plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
To discuss how to make a lecture an effective learning experience	Module 10: The lecture method	• Purpose of lectures • Preparation of lectures • Effective delivery
To review how to make and use audiovisual aids effectively	Module 11: Use of audiovisual aids	• Types and purpose of audiovisual aids • Preparation and use of transparencies
To learn teaching skills through practice and constructive feedback	Module 12: Microteaching	• Explaining • Questioning and reinforcement • Composite teaching skills • Practice and critique
To practice facilitating learning during small group discussions	Module 13: Facilitating small group discussions	• Facilitating small group discussions • Practice and critique • Managing change and conflict
To determine, for any country: • Who needs training in HSR • What type(s) of training strategies are appropriate • What should be the content of training • What training materials are available How to use the available material to plan a short course	Module 14: Training in health systems research	• Process of developing HSR in a country • Training needs and strategies • Training materials that are available • Planning a short course in HSR
To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Module 14a: IDENTIFYING TRAINING NEEDS IN HSR

OBJECTIVES

At the end of this module, participants should be able to:

1. Describe the process of promoting the development of HSR in a country.
2. Identify training needs in HSR and appropriate training strategies.

CONTENTS

Information for the module facilitator

The training needs associated with developing HSR (lecture/discussion)

Exercise: Analysis of training needs

MATERIALS

All volumes of this HSR Training Series should be available as reference material during this module. In addition, other relevant training materials could be made available.

Handout 14A.1. Exercise: Analysis of Training needs

INFORMATION FOR THE MODULE FACILITATOR

This module consists of a lecture/discussion, an exercise, and a plenary for presenting group work.

The module facilitator and facilitators for the exercise should prepare themselves by reading **Modules 5** and **6** of Volume 4 (Managing Health Systems Research) to be able to respond to the various issues that are likely to be raised by participants.

Participants might come from different settings (e.g. ministries of health, universities, research institutions). The content and focus of the module should be adapted to the specific needs of particular types of participants. For example, if participants are university based, greater emphasis should be placed on analyzing the training needs within universities and on identifying the contribution that universities can make in supporting HSR in the ministry or at district level.

THE TRAINING NEEDS ASSOCIATED WITH DEVELOPING HSR (lecture/discussion)[1]

Constraints in developing HSR include:

- Inadequate understanding and appreciation among **managers** of the need for research information and the uses for such information;
- Inadequate capability among **researchers** to focus research on priority health problems, produce the types of information needed by managers, and promote the use of this information; and
- Inadequate **organizational mechanisms** to support the development of HSR.

Strategies to develop HSR should, therefore, encompass the training of managers, the training of researchers, and organizational changes that enhance the likelihood that trained individuals will be able to use their skills.

Phases in developing HSR

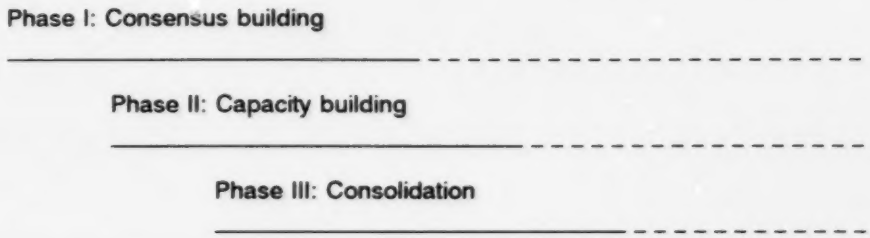
The development of HSR in a country may be characterized as a series of sequential though overlapping phases:

1. Consensus building, aimed at creating a suitable climate for HSR;
2. Capacity building, aimed at developing and sustaining a pool of research and managerial skills in the country; and

[1] This section is a synopsis of Volume 4, Module 5, Phases in developing HSR as a management tool which should be used as a source document by the module facilitator.

3. Consolidation, aimed at creating viable organizational and institutional structures and processes to sustain the use of HSR as a management tool.

Figure 14A.1. Phases in institutionalizing HSR.



Each phase needs repeated renewal because of staff mobility and changing political and socio-economic priorities and pressures.

Strategies for developing HSR

The **strategies for developing HSR** may be categorized as:

1. Strategies for human resource development, which may include:
   - Planning (identification of the types and numbers of personnel and their education needs in terms of HSR);
   - Training (planning, implementation, and evaluation of the appropriate educational strategies); and
   - Human resource management (selection and recruitment, career development, supervision, incentives, and rewards).
2. Strategies for organizational and institutional development, which may include:
   - Establishing HSR focal point units to provide leadership in formulating policies, identifying priorities, and establishing linkages;
   - Identifying and strengthening lead agencies for HSR to provide specialized research capability and support human resource development;
   - Realigning and strengthening the mechanism for research funding;
   - Establishing mechanisms for communication and interaction between researchers and managers; and

- Developing research institutions that will support creativity, manage institutional change, and apply social marketing for research.

Of these strategies, the management of human resources and the strategies for organizational and institutional development are the responsibility of managers in the health system, particularly managers of research institutions. Such strategies are the focus of courses for research managers. Materials for such courses are contained in Volume 4 of this Training Series.

Planning for the training of human resources is the responsibility of trainers and will be the focus of Module 14B.

EXERCISE: Analysis of training needs

METHODOLOGY

The instructions for this exercise (Handout 14A.1 at the end of this module) should be distributed to the participants.

Participants from the same institutions (e.g. universities or ministry of health, or research institutions) or from the same country can work together as a group. Others, who do not have fellow participants from their own setting, can work as individuals and apply their analysis to their own country or institution and subsequently discuss the product of their analysis with other participants or with facilitators.

This exercise is intended to stimulate participants to visualize their own potential contributions to training in HSR within a larger framework of the development of HSR in the country. It is not intended to produce a comprehensive analysis of the country situation. Facilitators should reassure participants in this respect and encourage them to perceive this analysis as a prelude to designing a course that they themselves will implement.

The purpose of the exercise is to enable participants to identify the training needs associated with each stage of development of HSR in the country. "Training needs" could refer to the needs of the country or the needs of a particular institution.

Many participants may not be aware of initiatives and developments in their country. For example, participants from universities might be unaware of activities in the ministry of health at the district level and would probably assume that there is no activity at that level. Similarly, participants from the ministry might assume that nothing of interest is taking place in the universities. Facilitators should probe and encourage participants to state why they think that there has been no activity — is it just that they are not aware of activities or have they discussed the issue with knowledgeable persons from the relevant institution?

EXERCISE, continued

Participants should review the questions in each cell in the table and decide what rating should be assigned to that cell, taking all the questions into consideration. The possible responses for each cell include:

+++	always
++	quite often
+	once in a while
-	hardly ever
--	never
DK	don't know

Example:

A completed table might appear as follows:

	Policy level	Program management	Operational level
Consensus	++	++	+
Capacity	+	+	DK
Consolidation	+	+	

In the above example, it is apparent that the focus should be on capacity building. This could include:

a. Reorientation of experienced researchers so as to focus research on priority health problems, and

b. Training of health-service personnel and beginner researchers on research methods and the research process.

Of these two possible activities, the participants should select the activity that is most feasible to implement taking into consideration their position and their organization's potential.

Facilitators should use the results of this "situational analysis" to guide participants when they identify riority target groups for training as part of the exercise.

Handout 14A.1. EXERCISE: Analysis of training needs.

This exercise is to enable you to obtain an overview of the situation in your country and in your institution in relation to the development of HSR. This overview will be helpful as you try to identify in realistic terms the type of training activity(ies) you can develop and why they will be useful.

Instructions

1. Analyze the constraints and potentials in the development of HSR in your own country using the framework provided in Table 14A.1 or 14A.2. (You may not be able to answer all the questions in the framework because you are not aware of the situation at the policy level in the ministry of health *or* in academic institutions *or* at the district level. If this is so, your response should be "don't know." Take note of these questions so that you can subsequently find out about developments in your country and link your own efforts with those of others who are working on other HSR-related initiatives.)

   You can use the following symbols to indicate your response to the questions in each of the cells:

+++	always	-	hardly ever
++	quite often	--	never
+	once in a while	DK	don't know

Table 14A.1. Framework for analyzing constraints and potentials (for use by participants from health-service settings).

	Level of management		
	Policy level	Program management	Operational level
Consensus building	Do policymakers - ask for information? - use it in decision-making? - support HSR?	Do program managers - ask for information? - use it in decision-making? - support the development of HSR?	Do health service personnel - obtain information to use in developing solutions? - consult community members?
Capacity building	Are experienced researchers involved in research to support policy decisions? If not, why not?	Are any researchers involved in research to support decision-making for health programing? If not, why not?	Are any health service personnel doing HSR? If not, why not?
Consolidation	Is research linked to health priorities? Is research funding aligned to stated policy?	Are available research resources used to: - do research on priority problems? - train local researchers for policy or operational levels? Are there any formal mechanisms for researcher-manager interaction?	In existing research institutions: What is the attitude/involvement with HSR? Is any support given for research at the operational level? Are efforts made to promote the use of research results?

Table 14A.2. Framework for analyzing constraints and potentials (for use by participants from universities and research institutes).

	Level of management		
	Policy level	Program management	Operational level
Consensus building	Do top-level officers in the Ministry of Health *ask* for research information and use it in decision-making? Do top-level officers in the university (vice-chancellor, president, dean) support HSR?	Do program managers[a] in the MOH ask for information and use it in decision-making? Do chairpersons, heads of departments or units in the university/research institute support HSR?	Do researchers interact with health managers, health personnel, community before selecting research topics? Are lecturers aware of HSR and its implications?
Capacity building	Are experienced researchers involved in research to support policy decisions? If not, why not? Are there HSR courses? Is HSR integrated into the curriculum?	Are researchers involved in - multidisciplinary research? - research to support health program development? Are health policies and priorities made known to research staff? Are research and teaching staff trained in HSR?	Are researchers involved in projects with participation of the community and health personnel? Are students introduced to HSR? Is it adequate?
Consolidation	Is research linked to health priorities? Is research funding aligned to stated policy?	Are available research resources used to: - do research on priority problems? - train local researchers for policy or operational levels? Are there any formal mechanisms for researcher-manager interaction?	In universities and research institutes: What is the attitude/involvement with HSR? Is any support given for research at the operational level? Are efforts made to promote the use of research results?

[a] Program managers are heads of programs, such as primary health care, family health, environmental health, etc.

2. Based on the above analysis, make a "diagnosis" of the level of development of HSR in your country. The purpose of this diagnosis is to help you to subsequently identify training needs.

   The following descriptions of characteristics of countries in terms of the commitment to HSR and the capacity to do research will assist you in making the diagnosis. These categories are not intended to be comprehensive. They are provided as an example of the approach that could be used so as to form a basis on which to propose the training initiatives that will be discussed in a subsequent exercise.

Table 14A.3. Characterization of countries or regions in terms of potential to use HSR in support of Health for All.

National commitment and institutional mechanisms	Capacity to do research		
	Poor	Fair	Good
Poor	(a)	(c)	(e)
Fair	(b)	(d)	(f)
Good	/////	(f)	/////

For each of the categories in the table, a brief description of the situation is as follows:

Category (a) There is hardly any research pertinent to priority health problems, and the need for such research information is not recognized by policymakers, managers, or researchers.

Category (b) There is a favourable climate for HSR — policymakers and some managers in key positions recognize the need for research information to support decision-making. However, there is very little capacity in the country to do such research.

Category (c) Some research skills are available in academic and research institutions, but they are isolated from managerial needs (i.e., researchers are not aware of concepts of HFA/PHC, have no skills in multi-disciplinary inter-sectoral approaches, and no understanding of managerial problems).

Category (d) A small HSR unit is providing leadership within health services and is actively involved in doing HSR. Some managers are committed, and are using HSR. However, staff mobility (promotions, migrations, transfers) may destroy the gains that have been made. Demand for HSR exceeds the ability to do it. Academic researchers are uninvolved in HSR.

Category (e) Good quality researchers are abundantly available in research and academic institutions and in fields like family planning, agricultural economics, clinical research, etc. However there are no linkages between research and management. Management's ability to use research is limited.

Category (f) Research to support HFA is very common. However either the research capacity or institutional mechanisms are inadequate to deal with the complexity of problems that require research, (e.g. clinical/economic/behavioural dimensions).

Use a diagnostic description of your country situation based on your analysis when you prepare the background section to your training proposal (i.e., when you respond to question 4).

3. Based on your perception of the situation in your country:

   - What are the priority target groups that need training?
   - What are their educational needs at present:
     - for consensus building?
     - for capacity building?
     - for consolidation?

List the educational needs for the priority target groups you have selected in the appropriate cells of the table below.

Table 14A.3. Outline for discussing training needs.

	Target groups					
	Policy-makers and senior managers	Health service personnel	Experienced researchers	University teachers and junior researchers	Trainers	Community members
Consensus building						
Capacity building						
Consolida-tion						

4. Based on this analysis, prepare a brief (1-2 pages) statement of the training needs for HSR for your country or your institution.

   (This statement will be used as the **BACKGROUND** section for your proposal for a training course in HSR that will be the topic of an exercise in the next next module.)

Health Systems Research Training Package

Volume 5: Training of Trainers
for Health Systems Research

Module 14B:

PLANNING HSR TRAINING ACTIVITIES

The rationale and content of the modules in this volume

Why have this module	Module	Content
To plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
To discuss how to make a lecture an effective learning experience	Module 10: The lecture method	• Purpose of lectures • Preparation of lectures • Effective delivery
To review how to make and use audiovisual aids effectively	Module 11: Use of audiovisual aids	• Types and purpose of audiovisual aids • Preparation and use of transparencies
To learn teaching skills through practice and constructive feedback	Module 12: Microteaching	• Explaining • Questioning and reinforcement • Composite teaching skills • Practice and critique
To practice facilitating learning during small group discussions	Module 13: Facilitating small group discussions	• Facilitating small group discussions • Practice and critique • Managing change and conflict
To determine, for any country: • Who needs training in HSR • What type(s) of training strategies are appropriate • What should be the content of training • What training materials are available How to use the available material to plan a short course	Module 14: Training in health systems research	• Process of developing HSR in a country • Training needs and strategies • Training materials that are available • Planning a short course in HSR
To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Module 14B: PLANNING HSR TRAINING ACTIVITIES

OBJECTIVES

At the end of this module, participants should be able to:

1. Identify HSR training strategies to meet training needs.
2. Identify training materials that are available and select appropriate ones for use.
3. Plan a short training course in HSR.

CONTENTS

Information for the module facilitator

Training and consensus development strategies (lecture/discussion)

Exercise: Planning a short course in HSR

Presentation and discussion of results of the group work (plenary)

MATERIALS

All volumes of this HSR Training Series should be available as reference material during this module. In addition, other relevant training materials could be made available.

Handout 14B.1: Exercise: Planning a workshop or course in HSR
Handout 14B.2: Promoting HSR among top-level policymakers and senior managers

INFORMATION FOR THE MODULE FACILITATOR

The scope and content of this module should be determined by the module facilitators after taking into consideration the educational needs of the participants and the needs of the country in terms of the development of HSR.

For example, if HSR is at an early stage of development in the country and the participants are expected to be pioneers and prime movers, greater emphasis could be placed on the process of promoting the development of HSR and the consensus-building approaches that are available for this purpose. (See Volume 1 of this HSR Training Series.) On the other hand, if the country's need is to develop more capacity to do research, emphasis could be placed on planning a short training course in HSR such as the one described in Volume 2 of this series. However, it is suggested that all participants should be introduced to each of the topics.

Prepare an overview of materials available in the HSR Training Series and distribute it either at the beginning of this presenatation or the night before. (It could include the flowcharts outlining each of the courses and any useful promotional material that is available.)

TRAINING AND CONSENSUS DEVELOPMENT STRATEGIES (lecture/discussion)[1]

For each phase of development it is necessary to:

- Identify the target groups who should be included in the educational initiatives,
- Analyze their training needs, and
- Select strategies that are suitable for the various groups.

Groups that need **training and orientation** include:[2]

- Policymakers and senior managers;
- Managers of health programs, health-service personnel, and community members who will be involved in simpler research projects;
- Researchers and academicians, such as:
  - Experienced researchers,
  - Junior researchers,
  - University teachers, and
  - Students;

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[1] The material for this lecture/discussion is taken from Volume 4, Module 6, pages 3-13, with slight adaptation.

[2] IDRC/WHO. 1989. Training to support the development of health systems research. An unpublished working document produced by a technical working group sponsored by International Development Research Centre and the World Health Organization, Ottawa.

- Research managers; and
- Trainers for HSR.

Policymakers and senior managers[3]

Top-level decision-makers can be divided into at least two, sometimes overlapping sub-groups:

- **Top-level policy-makers**, who may include ministers of health, undersecretaries of health, director generals, permanent secretaries (i.e., top appointed health officials and those immediately under them), and similar top officials from other relevant sectors; and
- **Senior managers**, who may include directors of health services and programs — such as maternal and child health, primary health care, health manpower training, and planning — decision-makers from other sectors, and directors of relevant academic and research institutions and donor agencies.

The titles and responsibilities within ministries of health around the world vary, of course, but the decision-making hierarchy and what managers at different levels need to know about HSR is somewhat similar, as illustrated in Figure 14B.1.

Ministers and undersecretaries of health are concerned with a wide range of policy issues and have only a minimal amount of time to focus on the issues of HSR. They need a general understanding of the contribution HSR can make to decision-making so they will support its institutionalization in the managerial process.

Directors of the large departments and programmes under the director of health services need to be able to differentiate situations that require research from situations in which adequate information is already available or in which political or socioeconomic considerations are so important that research results would have little or no impact on the decisions made. When it is appropriate, they need to be able to use information from HSR to assist with broad priority setting and general policy and operational decisions.

Senior program managers, such as the chiefs of family health, environmental sanitation, and communicable disease control who might serve under a director of public health, and the program coordinators under them, should be able to use HSR to analyze the problems facing their own programs, identify solutions, and assess the consequences of options chosen.

This group of policymakers and senior managers is of crucial importance in the early phases of development of HSR; however, their sustained support for the later phases of development is also very important. Furthermore, it is from within the ranks of this group that crucial "prime movers" are needed to initiate the process of developing HSR and recruit political and economic support for the process.

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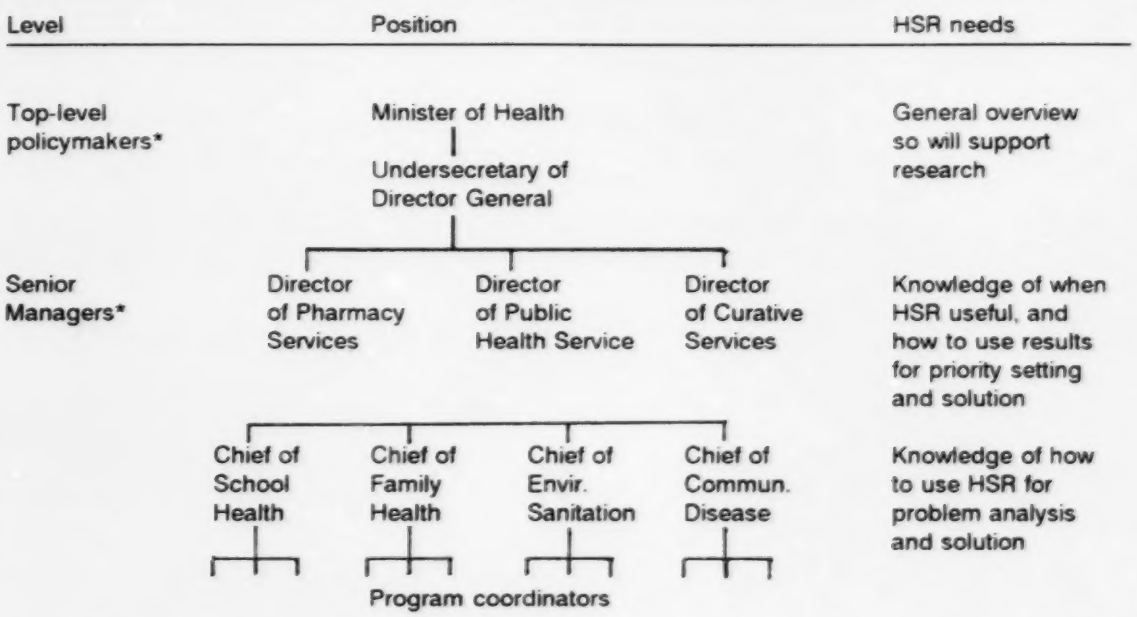
[3] This section is taken from Volume 1 of this training package.

Figure 14B.1. The decision-making hierarchy and HSR information needs.


Level
Position
HSR needs
Top-level policymakers*
Minister of Health
Undersecretary of Director General
General overview so will support research
Senior Managers*
Director of Pharmacy Services
Director of Public Health Service
Director of Curative Services
Knowledge of when HSR useful, and how to use results for priority setting and solution
Chief of School Health
Chief of Family Health
Chief of Envir. Sanitation
Chief of Commun. Disease
Knowledge of how to use HSR for problem analysis and solution
Program coordinators

* Decision-makers from other sectors such as education, agriculture, planning, housing, and labor should be considered as well.

Examples of initiatives that have been useful for providing orientation and building consensus within this group include:

- Intercountry workshops or conferences for senior managers;
- A task force to assess the current research situation and recommend policy changes;
- National consultative meetings to increase awareness of HSR among key managers and researchers; and
- Inclusion of research results in policy statements that are prepared for top management.

During the capacity-building and consolidation phases, initiatives include:

- Case study workshops that illustrate practical uses of research information; and
- Involvement of senior managers in developing national research priorities and participating in conferences where research results are presented.

A summary list of suitable strategies is provided in Handout 14B.2.

For further details on these and other initiatives, refer to the HSR Training Series, Volume 1: *Strategies for Promoting Health Systems Research as a Management Tool* (IDRC/WHO 1991).

Managers at program management and operational levels

Efforts at developing HSR will be wasted unless there is concurrent development of the management expertise needed to utilize relevant information to improve the health of the community. Although management training is not within the frame of reference of training in HSR, it is a closely related initiative. There is need for appropriate **management training**, including the use of research information in the problem-solving process. Several effective training initiatives are available and will not be discussed in this module. However, participants should be aware of such initiatives. They should recognize the relationship between management training and training in HSR and be prepared to optimize opportunities for interaction.

Health service personnel and community members[4]

A suitable strategy for encouraging simpler research aimed at providing information for decision-making at the lower levels in the management hierarchy and in the community would be to train health-service personnel and community members, when appropriate. This approach has been discussed in-depth in Module 4 and, therefore, only the basic principles for making this strategy effective are reiterated below.

- The training should include **practical experience in designing and implementing a research project**.

- As far as is feasible, the support and commitment of supervisors should be obtained to nominate participants from the health services, select a problem for research, and provide support as the participants conduct the research. When research focuses on community-related problems, community decision-makers should be asked to nominate community members who can be involved in the research and provide support as well.

- Because participants are usually available for training only for short periods, the training course can be designed as a two short workshops with an interim period of 4-8 months during which participants implement their research projects in their own places of work or communities.

Design research proposal	Implement research	Analyze data, prepare and present report
Workshop, Part 1 2-3 weeks	4-8 months	Workshop, Part 2 1-2 weeks

- The training process should be highly interactive. For each step in the research process, a short theoretical presentation is followed by group work during which participant teams work together to develop that step in relation to their own project. Each group should be guided by a facilitator who is an experienced researcher. During the implementation phase, the facilitators should visit

[4] World Health Organization, Health Systems Research Advisory Group. 1988. Report of the second meeting, Gaborone, Botswana, 1988. WHO, Geneva, Switzerland. WHO/HSR/88.2.

the participants and provide practical guidance and supervision. At the end of the workshop on proposal development, each group of participants should have produced a research proposal and, at the end of the workshop on data analysis and report writing, each group should have completed and presented a research report.

- Participants who are selected for this training should have the educational background and personal capacity to be principal investigators for simple studies in the future.

Modifications of this training process (e.g., shorter duration, selected content) can be made for use with other personnel who will participate in or assist in the research process (e.g., data collectors and supervisors for data collection).

For further details as well as for training modules to support this type of training, refer to the HSR Training Series, Volume 2: *Designing and Conducting Health Systems Research Projects* (IDRC/WHO 1991).

Researchers and academic staff

This target group consists of:

- The existing pool of experienced researchers in health and health-related fields; and
- Young researchers and academic staff, as well as students.

Reorientation of experienced researchers[5]

Experienced researchers may be working in related fields (e.g., epidemiology, health economics, sociology, anthropology, policy analysis, technology assessment, or quality assurance). In the consensus-building phase, reorienting of this existing pool of experienced researchers so they have a better understanding of the concepts and scope of HSR will enable them to produce research to meet priority concerns and also to provide support for the training initiatives required for capacity building.

Reorientation of such researchers is aimed at:

- Creating an awareness and understanding of problems of priority concern in the health system;

- Developing skills in communicating with health program managers and, if relevant, the community, both during the early stages of a study (problem identification and analysis) and in the later stages of presenting and promoting the use of research results; and

- Developing an understanding of the basic concepts and research approaches of sister disciplines so as to develop the skills to participate in multidisciplinary research.

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[5] World Health Organization, Health Systems Research Advisory Group. 1988. Report of the second meeting, Gaborone, Botswana, 1988. WHO, Geneva, Switzerland. WHO/HSR/88.2.

One effective approach[6] is a systematically planned series of seminars or conferences during which researchers and managers interact.

Essential ingredients in planning any strategy for this group include:

- Finding a suitable entry point.

  Be innovative in devising an approach that would be attractive so as to entice busy researchers to set aside time to participate. For example, biomedical researchers may be interested in how to enhance the utilization of their research results; clinical researchers are usually also managers of clinical units, and, as such, may be interested in resource management in clinical units. A workshop or conference for each of these groups could use such topics as the central theme and introduce the concepts of HSR within the framework of that theme, illustrating the concepts with practical examples.

- Using opinion leaders from the relevant research disciplines.

  Prestige and relative status are usually established within the circle of experienced researchers. Researchers are far more likely to be interested in the opinions and experience of a respected colleague from within their own discipline than in those of an "outsider." Therefore, recruit suitable opinion leaders who are "HSR converts" and use their input during workshops.

- Recognizing time constraints.

  Experienced researchers are unlikely to attend long workshops or undertake extensive reading outside their discipline. A series of short conferences (e.g., half to one day) would be preferable. Reading assignments should be related to the discipline of the researcher.

Young researchers and academic staff - involving the university

Training staff members who will be the future generation of health-research personnel should include an emphasis on the concepts and approaches used in HSR.

Universities that provide post-graduate (advanced-level) training in research may need to reorient their programs. Such reorientation is a complex process since it involves:

- Reorientation of academic staff; and
- Restructuring of the post-graduate training program.

Such a process needs to be planned systematically, taking into consideration the existing strengths and potential of the institution and the community that it serves (including the health system and the relevant managers in that system). The principles underlying the process are similar to those involved in the reorientation of experienced researchers with the addition of specific courses

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[6] HSR Training Series, Volume 3: *Strategies for involving universities and research institutes in health systems research*. IDRC/WHO 1991.

research methodology that could incorporate the methods and materials described previously for training health-service personnel to do research projects.

While universities are reorienting their programs, young researchers could also be trained in specialized "centres of excellence" that offer courses of 3 months to a year duration in specialized disciplines (e.g., health economics research, health behavioural research) that are oriented to HSR.[7]

For further details and materials to support initiatives for orienting experienced researchers, junior researchers, and academicians, refer to HSR Training Series, Volume 3: *Strategies for Involving Universities and Research Institutes in Health Systems Research* (IDRC/WHO 1991).

Research managers

To support the consensus-building and capacity-building phases of development and to put into place and sustain the initiatives that are needed in the consolidation phase, it is important that senior managers of research institutions, academic institutions, and research organizations understand the importance and process of developing HSR capacity to support management.

The course outlined in the HSR Training Series, Volume 4: *Managing Health Systems Research*, is an example of one type of useful training activity for research managers. In addition, research managers should participate in the initiatives for other groups, thereby acquiring an in-depth understanding of the problems and potential for HSR in their own countries.

Training of trainers

The training initiatives that have been described require fairly sophisticated educational methods. A prerequisite for serving as a trainer in these initiatives is to have extensive research experience. Experienced researchers have seldom been trained in educational methodology. They are generally unfamiliar with interactive training methods and know little about how to design short training courses adapted to the specific entry competences and expected functions of personnel with different types of academic and working experiences. Also, much of the training for HSR requires that trainers be familiar with the basic concepts and principles of management. Educational methods and principles of management are not familiar territory for many experienced researchers.

Two approaches can be used in a complementary manner to train experienced researchers to become trainers in HSR:

- Attending courses specifically designed for training of trainers; and
- Participating as students in various types of training initiatives before they become trainers.

Specifically designed courses for training of trainers should include:

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[7] World Health Organization, Health Systems Research Advisory Group. 1988. Report of the second meeting, Gabarone, Botswana, 1988. WHO, Geneva, Switzerland. WHO/HSR/88.2.

- An overview of educational technology suited to the requirements for training mature participants in research approaches and critical thinking;
- A review of the research process to develop a systematic approach to teaching research; and
- A discussion of guidelines for managing short courses in HSR.

For further details on this type of initiative and for suitable materials to support this initiatives, refer to the volume being used for this course, HSR Training Series, Volume 5: *Training of Trainers for Health Systems Research* (IDRC/WHO 1991).

The relationship between training strategies and the development of HSR in the country

Training strategies will be effective and sustainable only if they are planned in coordination with the overall process of developing HSR in the country. Thus efforts at consensus building should be immediately supported by efforts to improve capacity. If there are ongoing efforts at capacity building (e.g., training in research methodology) but insufficient use of information, the capacity building initiatives should be linked to consensus building and consolidation strategies such as disseminating information about studies that have been completed.

(Illustrate the above concept by describing the process that have occurred in one or more countries. There are several examples in Health Systems Research in Action (WHO, 1988)[8] and in Volume 1 of the Training Series, Chapter 5. Alternatively, invite one or two participants to describe the events that have occurred in their own countries and to relate them to the phases in development).

Steps in preparing a proposal for an educational strategy

1. **Make a situational assessment.**

   To plan effective educational strategies, it is important for trainers to analyse the current state of development of HSR in their country and assess strengths and weaknesses. (If participants come from a particular institution (e.g., a university), and have had little exposure to agencies outside their own institution, they should focus on analysing the situation within their own institution). In order to do this, it is necessary to have information on previous initiatives and the current practices, policies and the opinions of key personnel in the health services, training institutions and research institutions. A quick review of such institutions will enable trainers to recognise many potential resources that can be harnessed for HSR.

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[8] World Health Organization. Health Systems Research in Action. Case studies from Botswana, Columbia, Egypt, Indonesia, Malaysia, the Netherlands, Norway and the United States of America. WHO/SHS/HSR/88.1, Geneva 1988.

2. **Select the target group(s) and type of strategy(ies).**

   The rationale for selecting a target group and strategy should be based on:

   - The situational analysis (which should have identified the training needs in the country or institution); and
   - The feasibility of initiating the relevant educational strategy.

     For example:

     - A relatively junior trainer who has no access to higher levels in the ministry of health cannot expect to initiate consensus-building among top-level decision-makers in the ministry.
     - There may be a great need for more trainers in HSR in the country, but it would not be feasible to plan a training of trainers course unless there are sufficient numbers of researchers who will be released by their respective institutions to attend the course and subsequently serve as trainers in HSR courses and workshops.

3. **Prepare the background section of the proposal.**

   The background or introduction to the proposal should describe the situational assessment and the relationship of the proposed educational strategy to the overall development of HSR within the country.

4. **Select the title of the strategy.**

   The wording of the title is particularly important if the strategy is for senior managers or experienced researchers. Remember that the purpose of the title is to:

   - Attract the attention of the reader, including administrative and funding authorities as well as prospective participants, and
   - Provide at a glance information on the main theme or purpose of the strategy.

   Thus, **for example**, a title "Orientation to HSR for Senior Managers" is not as attractive as "Health Systems Research as a Management Tool." Similarly the title "Orientation in HSR for Experienced Researchers" is not as attractive as "Enhancing the Application of Biomedical Research Results Through Health Systems Research."

5. **Determine the tentative date, duration, venue for the course, and number and types of participants.**

   The date and venue should be planned to increase the probability that the desired number and types of participants will be able to attend. Distance from the capital city, accessibility, etc., are important considerations, particularly for consensus-building efforts. State the criteria for selecting participants. Any group is more likely to attend if the relevant "boss" is involved in sponsoring or organizing the course or giving the keynote address. However, be realistic when asking busy officers to set aside time for workshops.

6. State the objective of the strategy.

Refer to the module on educational objectives and formulate objectives that are suitable for a course, meeting, or other strategy you have selected.

7. Prepare a draft outline of the course, meeting (or other strategy selected).

Depending on the target group and type of strategy that has been selected, refer to the relevant training materials that are available as reference, such as the volumes in this Training Series.

Volume 1: *Strategies for Promoting Health Systems Research as a Management Tool* (for decision makers).
Volume 2: *Designing and Conducting Health Systems Research Projects* (i.e., research methodology for health service personnel and junior researchers.)
Volume 3: *Strategies for Involving Universities and Research Institutes in Health Systems Research* (for experienced researchers)
Volume 4: *Managing Health Systems Research* (for research managers)
Volume 5: *Training of Trainers for Health Systems Research*

Many examples of course outlines and course contents are suggested in the above reference materials. Select, adapt, or develop the outline that is most suited to your proposed strategy and setting. The outline should include a list of tentative topics, their duration, and the teaching strategies that can be used. (Refer to Module 9, Introduction to principles of learning and training methods, for ideas.)

Using the draft outline as a framework, devise methods to enhance the effectiveness of the course or meeting. Be flexible and innovative. For example, if a consultative meeting for senior managers is being planned, ask a top-level policymaker to deliver the keynote address or serve as chairperson of the session during which the recommendations of the meeting will be presented. Similarly, in planning a course on research methodology, arrange for experienced researchers and senior managers to be members of panels to whom the course participants will present their research proposals.

8. Select resource persons and consultants and estimate the budget.

Refer to Volume 2, Annex, Guidelines for organizing short courses on HSR, for details on how to estimate a course budget and identify resource persons and consultants. Include this information in your proposal.

EXERCISE: Planning a short workshop or course on HSR

To assist participants in planning the training workshop or course that they intend to implement, relevant training materials should be made available for reference during the group or individual work.

Group or individual work

1. Prior to the session participants should be assigned to read Part I of the Annex of Volume 2.

2. Distribute Handout 14B.1, which describes this exercise to the participants. Each participant or group should select one target group and prepare for one workshop or course that they intend to conduct within the next 12 months. Planning should include:

   - Preparing a proposal for the workshop or course,
   - Preparing a draft outline or schedule for the workshop or course, and
   - Identifying the steps for implementing the workshop or course and preparing an implementation plan.

3. Guide participants to select training strategies that are feasible and for which there is a need as shown by their situational analyses.

   If a participant selects a consensus-building strategy, facilitators should guide him or her to consider possible opposition and resistance and analyze the possible reasons for this. The strategy that is proposed should illustrate how such opposition or resistance will be prevented. The title and description of the strategy should be appropriately worded (e.g., a consensus-building initiative for top managers would be entitled "Consultative Meeting" rather than "HSR Course"). The topic could be "Tools for Solving Health Management Problems," for example, rather than "Orientation to HSR."

Plenary presentation

Participants should present their proposals to a selected panel. This panel can include key managers from relevant institutions or from the ministry of health.

During the presentation identify:

- The potential for networking and support between participants;
- The potential for support from other institutions and organizations; and
- Strategies for mobilizing managerial, political and financial support to assist participants in implementing their plans of action.

References

Brownlee, A. 1986. A guide for planning training and research programmes in health systems research. World Health Organization, geneva, Switzerland. pp. 44-116.

Friedman, W.H., Ganong, J.M., and Ganong, W.L. 1979. Workshopping. Nurse Educator, Nov/Dec: 19-22.

IDRC/WHO (International Development Research Centre/World Health Organization), 1991. Health systems research training series, volumes 1-5. IDRC, Ottawa, Canada. IDRC-286e to 290e.

Stevens, B.J. 1977. The successful workshop: how to bring it off. Nurse Educator, Jan/Feb: 16-20.

WHO (World Health Organization), 1984. Health services research course: course guide for administrators and trainers. Boston University, Boston, MA, USA. WHO/AFRO-SHDS. pp. 1-52.

WHO (World Health Organization), DANIDA, and Ministry of Health, Malaysia, 1988. Interregional training workshop on health systems research, Kuala Lumpur, Malaysia, 16-26 August 1988. pp. 66-72.

Handout 14B.1. EXERCISE: Planning a short workshop or course on HSR.

Reading prior to exercise:

Read Part I from the Annex of Volume 2 of the HSR Training Series.

Instructions

1. Considering the analysis of training needs that was completed during the exercise in the previous module and your own constraints and potential as well as those of your institution, select a workshop or training course that you could organize or contribute to.

2. Refer to your reading and reference materials to:

   - Prepare a proposal for the workshop or course;
   - Prepare a draft outline or schedule for the workshop or course; and
   - Identify the steps for implementing the proposal and prepare an implementation plan.

   (See the annex to this handout for the expected output of this exercise)

3. The reports of this exercise will be presented and discussed during the plenary session.

References

IDRC/WHO Health Systems Research Training Series:

Volume 1: *Promoting Health Systems Research as a Management Tool*

Volume 2: *Designing and Conducting Health Systems Research Projects*

Volume 3: *Strategies for Involving Universities and Research Institutes in Health Systems Research*

Volume 4: *Managing Health Systems Research*

Annex to Handout 14B.1. Outline for a proposal for a course or workshop on HSR.

1. Background

The background statement should include an analysis of training needs in HSR and a justification for the particular course or workshop that is being proposed. (This will be the output of the exercise on analysis of training needs adjusted to focus on the training activity that is being proposed.)

2. Proposal for the course or workshop

Title
Objectives
Number and type of participants
Tentative date, duration, and venue
Budget requirements
Assistance required (if necessary) in the form of consultants or resource persons from within or outside the country

3. Outline or schedule

4. Implementation plan

This will include the list of actions that need to be taken, for example:

- Submit the proposal to .... for approval,
- Select the participants,
- Identify and arrange for the venue, etc.,

and the target date for each of the above actions.

Present this implementation plan as a GANTT chart like the one below.

	1992											
Action	J	F	M	A	M	J	J	A	S	O	N	D
Submit for approval	X											
Select participants		XX										
Etc.												

Handout 14B.2. Promoting HSR among top-level policymakers and senior managers.[9]

Summary of strategies focused on policymakers

Top-level policymakers generally have limited time to focus on the issue of HSR, so strategies to influence their opinions must take account of this constraint. Strategies may include:

- Integrating sessions on "use of HSR as a decision-making tool" in national or international health-management meetings attended by top-level policymakers.
- Preparing briefings that use HSR results to support policy and program decisions for policymakers to use in the World Health Assembly and other high-level meetings.
- Preparing answers for questions asked in government forums that quote research results to support the ministry's position.
- Asking policymakers to serve on the national research council or health research advisory committee that sets HSR research agendas and reviews results for potential application.
- Presenting policymakers with the results of major in-country HSR projects and options for action through activities such as:
  - Distributing one-sheet summaries of important HSR results;
  - Preparing booklets or newsletters that include short abstracts of HSR results and managerial follow-up measures;
  - Presenting key findings during meetings that policymakers attend; and
  - Inviting policymakers to key sessions during short workshops that present key findings of major studies and provide a forum for managers and researchers to work together to apply results.

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[9] The two pages of Handout 14B.2 are reproduced from HSR Training Series, Volume 1: *Strategies for Promoting Health Systems Research as a Management Tool*, IDRC/WHO 1991.

Summary of strategies focused on senior mangers

Directors of health services, health programs, and academic and research institutions can be encouraged to support HSR and use its results in their work through the use of:

- Intercountry workshops on HSR,
- Task forces on health research,
- National consultative meetings on HSR,
- HSR projects with intensive involvement of decision-makers,
- Sessions on HSR in more broadly-focused workshops or conferences,
- HSR consultants,
- Orientation sessions preceding HSR proposal-development workshops,
- Case study workshops on HSR,
- HSR focal points, units and advisory committees,
- Joint health manager/funding agency working sessions,
- National and international networks for HSR.

Health Systems Research Training Series

Volume 5: Training of Trainers
for Health Systems Research

Module 15:

TEACHING PRACTICE

The rationale and content of the modules in this volume

Why have this module	Module	Content
To plan a learning experience to meet the expected learning objectives	Module 8: Lesson planning	• Purpose of a lesson plan • Preparation of lesson plan
To introduce principles of learning and educational approaches that are available	Module 9: Introduction to principles of learning and teaching methods	• Principles of learning • Types of teaching methods • Uses of each method
To discuss how to make a lecture an effective learning experience	Module 10: The lecture method	• Purpose of lectures • Preparation of lectures • Effective delivery
To review how to make and use audiovisual aids effectively	Module 11: Use of audiovisual aids	• Types and purpose of audiovisual aids • Preparation and use of transparencies
To learn teaching skills through practice and constructive feedback	Module 12: Microteaching	• Explaining • Questioning and reinforcement • Composite teaching skills • Practice and critique
To practice facilitating learning during small group discussions	Module 13: Facilitating small group discussions	• Facilitating small group discussions • Practice and critique • Managing change and conflict
To determine, for any country: • Who needs training in HSR • What type(s) of training strategies are appropriate • What should be the content of training • What training materials are available How to use the available material to plan a short course	Module 14: Training in health systems research	• Process of developing HSR in a country • Training needs and strategies • Training materials that are available • Planning a short course in HSR
To gain experience in teaching through practice after the course is over	Module 15: Teaching practice	• Preparations that should be made • Teaching a session while being evaluated • A sample Teaching Practice Appraisal Guide

Module 15: TEACHING PRACTICE

OBJECTIVES

At the end of **one** teaching session, the "teacher" should be able to:

1. Achieve the intended outcome of the lesson.
2. Apply the principles of adult learning in the given situation.
3. Demonstrate the use of appropriate teaching methods identified in the lesson plan.
4. Apply microteaching techniques (explaining, questioning, etc.) throughout the lesson.
5. Use the chosen audiovisual aids skillfully.
6. Appreciate the complexity of the process of teaching and the need for further practice.

CONTENTS

A note to the facilitator

A note to the participants

MATERIALS

Handout 15.1. Teaching practice appraisal guide

A NOTE TO THE FACILITATOR

This module should be used during the first few opportunities participants have to use their newly acquired training skills to train others after the training of trainers course is over. Participants have been asked, during this course, to plan a course that they will help implement. This module can be reviewed by the participants before they teach their first few sessions, and the appraisal guide (Handout 15.1) can be used by impartial observers (with teaching experience) to assess the participants' performance.

A NOTE TO THE PARTICIPANTS

Before the session

1. You should:

   - Review steps in planning a lesson (Module 8) before planning this particular lesson. The plan should be checked for accuracy of content and appropriateness of educational process;

   - Familiarize yourselves with:

     - The classroom setting; and
     - The use of the audiovisual aids; and

   - Consider appropriate and relevant use of microteaching techniques such as explaining and questioning as well as effective use of audiovisual aids.

2. Prepare the logistics and schedule for the teaching session (e.g., time, type of students, type of classroom setting). The lesson plan should be adapted to suit the participants in the course you will teach.

3. To get feedback on the effectiveness of teaching, you or one of your trainers could invite an impartial observer with training experience to critique the session using the Teaching practice appraisal guide (Handout 15.1). Discuss relevant aspects of the appraisal guide with the evaluator before the teaching session.

4. PRACTICE....PRACTICE....PRACTICE!

During the session

1. For a successful teacher, nothing can compensate for a well planned lesson, adequate practice and most important, well organized, clear content.

2. There is nothing like a good start! So, make sure the introduction is interesting.

3. Be yourself, and teach.

4. And don't forget, a good finish is important.

After the session

1. Discuss the outcome of the teaching session with the evaluator, using the appraisal guide (as reference only).

2. The assessment should be viewed as useful input that will help you strengthen and improve your performance.

Handout 15.1. Teaching practice appraisal guide.

Name of teacher:
Topic:
Teaching method:

Name of observer:
Date:

Rating scale: 1 = not observed; 2 = poor; 3 = average; 4 = good; 5 = excellent.

	1	2	3	4	5	Comments
1. Introduction						
Made clear the objectives of the lesson						
Clearly linked the introduction and content to be taught						
Gained audience attention						
2. Content/subject						
Familiar with subject						
Presented accurate and relevant material						
Presented material systematically						
Used understandable language						
Explained material using examples and illustrations						
Asked students questions						
Answered students' questions						
Gave appropriate reinforcement						
3. Audiovisual aids (AVA)						
Used appropriate AVA						
Aids used were audible/visible						
Familiar with the use of AVA						

	1	2	3	4	5	Comments
4. Delivery						
Enthusiastic						
Confident						
Fluent						
Voice - loud - clear - contrasting						
Maintained eye contact with audience						
Paced lesson allocated time appropriately material						
Was sensitive to audience needs						
Interjected humour appropriately						
5. Closure						
Reiterated key points						
Linked new ideas to previously taught content						
Summarized						

Overall rating

Poor ____ Unsatisfactory ____ Average ____ Good ____ Excellent ____

Head Office
IDRC, PO Box 8500, Ottawa, Ontario, Canada K1G 3H9

Regional Office for Southeast and East Asia
IDRC, Tanglin PO Box 101, Singapore 9124, Republic of Singapore

Regional Office for South Asia
IDRC, 11 Jor Bagh, New Delhi 110003, India

Regional Office for Eastern and Southern Africa
IDRC, PO Box 62084, Nairobi, Kenya

Regional Office for Middle East and North Africa
IDRC, PO Box 14 Orman, Giza, Cairo, Egypt

Regional Office for West and Central Africa
IDRC, BP 11007, CD Annexe, Dakar, Senegal

Regional Office for Latin America and the Caribbean
IDRC, Casilla de Correos 6379, Montevideo, Uruguay

Please direct requests for information about IDRC and its activities to the IDRC office in your region.

ABOUT THE AUTHORS

Indra Pathmanathan, MMBS, MPH, is a physician specializing in public health who is currently working in the Ministry of Health, Malaysia. She was previously on the academic staff of the University of Malaya. As head of the HSR program in Malaysia since its inception, she has been responsible for developing and implementing several strategies for HSR that have been replicated in other countries. These include training programs in HSR and Quality Assurance for decision-makers in ministries, for physicians, and others in district health teams, hospitals, and universities. She is a member of the Advisory Group on HSR, WHO-Geneva and serves on the editorial board of BRIDGE.

Nik-Safiah Nik Ismail, RN, SCM, BScN, MScN, MPH, is a nurse by profession who specialized in management and medical education. She is currently a lecturer at the Medical Education Unit, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, and is responsible for coordinating all teacher-training and management programs for the faculty. Previously, for more than 15 years, she had been a trainer of teachers and managers of health at the University of Malaya Medical Centre and the Ministry of Health. She has worked closely with Dr Indra Pathmanathan in HSR since 1982, the latest involvement being in the training of trainers in HSR. She has also served as a WHO consultant in Western Samoa in the field of nursing education.